Nevada Goldfields Inc. Barite Hill Project

POB 1530 McCormick, SC 29835 USA Telephone: 864-443-2222 USA Fax: 864-443-2187

RECEIVE

SEP 28 1590

BUREAU OF WATER WATER ENFORCEMENT DIVISION

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

September 21, 1998

SCDHEC Bureau of Water Water Enforcement Division 2600 Bull Street Columbia, SC. 29201 Attn: Robin Foy

Re: Barite Hill Project

Consent Order #98-049-W - Requirement 4

Dear Mr. Foy,

Enclosed are two copies of the Barite Hill Project Ground Water Compliance Plan required by Consent Order #98-049-W for your review.

If you have any questions, please contact me at (864) 443-2222.

Sincerely

Scott A Wilkinson Project Manager

CC: Mike Kolin; Chief Operating Officer

Frank Filas; Corporate Environmental Manager

Enclosures
((: Cra., Kennedy , L+WM

File: scdhecrf091898

Wondey .

Nevada Goldfields Inc. Barite Hill Project

POB 1530 McCormick, SC 29835 USA Telephone: 864-443-2222 USA Fax: 864-443-2187

May 28, 1999

SCDHEC Bureau of Water Pollution Control 2600 Bull Street Columbia, SC 29201 Attn: Bruce Crawford

Water Monitoring, Assessment & Protection Division

JUN 1 1999

RE: Barite Hill Project – Ground water results/ first quarter 1999 Permit # 16,225 Condition 3

Dear Bruce.

Enclosed are the results of the ground water samples for the fourth quarter 1998. The following observations were made:

GW1 – Calcium was 15.5 mg/L vs. a calculated tolerance limit of 13.16 mg/L. Cadmium was 0.071 mg/L vs. a calculated tolerance limit o 0.047 mg/L. Sodium was 43 mg/L vs. a calculated tolerance limit of 11.6 mg/L. Mercury was .004 mg/L vs. a calculated tolerance limit of 0.001 mg/L. Zinc was 2.08 mg/L vs. a calculated tolerance limit of 1.83 mg/L. Sulfate was 304 mg/L vs. a calculated tolerance limit of 239.3 mg/L. Ammonia was 2.94 mg/L vs. a calculated tolerance limit of 0.556 mg/L. The well was dry after removal of one well casing volume. The samples were collected after the well was allowed to recharge.

GW2 – Copper was 1.84 mg/L vs. a calculated tolerance limit of 1.308 mg/L. Mercury was 0.003 mg/L vs. a calculated tolerance limit of 0.0001 mg/L. Alkalinity was 67.2 mg/L vs. a calculated tolerance limit of 19.293 mg/L. Sulfate was 546 mg/L vs. a calculated tolerance limit of 212 mg/L. Ammonia was 1.50 mg/L vs. a calculated tolerance limit of 0.328 mg/L. The well was dry after removal of one well casing volume. The samples were collected after the well was allowed to recharge.

GW3 – Calcium was 31.1 mg/L vs. a calculated tolerance limit of 26 mg/L. Sulfate was 163 mg/L vs. a calculated tolerance limit of 39.7 mg/L. Ammonia was 1.97 mg/L vs. a calculated tolerance limit of 0.695 mg/L. The well was dry after one well casing volume was removed. The samples were collected once the well recharged.

GWH – Ammonia was 0.874 vs. a calculated tolerance limit of 0.321 mg/L. Sulfate was 29.2 mg/L vs. a calculated tolerance limit of 22.73 mg/L. The well was dry after three well casing volumes were removed. The samples were collected once the well recharged.

GWI – Sodium was 8.84 mg/L vs. a calculated tolerance limit 7.56 mg/L. Ammonia was 0.396 mg/L vs. a calculated tolerance limit of 0.186 mg/L. Sulfate was 17.5 mg/L vs. a calculated tolerance limit of 13.834 mg/L.

• Page 2 May 28, 1999

GWJ – Ammonia was 1.05 mg/ L vs. a calculated tolerance limit of 0.428 mg/L. The well was dry before three well casing volumes were removed. The samples were collected after the well recharged.

GWK – All the constituents were within the calculated tolerance limits. The well was dry after two well casing volumes were removed. The samples were collected once the well recharged.

GWP - Ammonia was 0.963 mg/L vs. a calculated tolerance limit of 0.326 mg/L.

If you have any questions, please contact me at 864 443-2222.

Sincerely,

Sincerely,

Scott A. Wilkinson Project Manager

Cc: Frank Filas; Corporate Environmental Manager

file:scdhebc052899

GW Wells Monitoring Report First Quarter 1999

NEVADA GOLDFIELDS McCormick, SC

SIGNATURE PAGE

This report, "Groundwater Sampling and Analytical Procedures Report for First Quarter, 1999," has been prepared in accordance with accepted quality control practices at the request of and for the exclusive use of NEVADA GOLDFIELDS. The report has been reviewed by the undersigned reviewers.

SHEALY ENVIRONMENTAL SERVICES, INC.

Michael A. Woodrum, Vice President of Analytical Services

March 31, 1999

Andy Norris, Quality Assurance/Quality Control Officer

March 31, 1999

TABLE OF CONTENTS

_		_
1	INTRODITCTION	,

I.A.	MONITORING	PARAMETERS	AND	FREQUENCY
1.7	MODITION		Δ	TRECUENCE

I.B. SAMPLING PROTOCOL

- I.B.1. Water Level MeasurementI.B.2. Total Depth MeasurementI.B.3. Well Evacuation
- I.B.4. Sample Collection

I.C. FIELD QUALITY CONTROL

- I.C.I. Field Cleaning Procedures
- I.C.2. Field Instruments and Measuring Devices
- I.C.3. Field Blanks
- I.C.4. Field Data Information Sheet
- I.C.5. Sample Transportation and Chain of Custody

II. ANALYTICAL PROTOCOL

II.A. ATTACHMENTS

Attachment I Analytical Results

Attachment II Depth to Groundwater Summary

Attachment III Chain of Custody Forms

Attachment IV Field Data Information Sheets

Attachment V Analytical Methodology

GROUNDWATER SAMPLING AND ANALYTICAL PROCEDURES REPORT

First Quarter 1999

NEVADA GOLDFIELDS, INC. McCormick, SC

I. INTRODUCTION

This report describes the procedures followed by SHEALY ENVIRONMENTAL SERVICES, INC. (SHEALY) during the sampling and analysis of groundwater at NEVADA GOLDFIELDS, McCormick, SC. The report includes procedures for:

- 1. Sample collection
- 2. Sample preservation
- Chain-of-Custody control 3.
- 4. Analytical protocol

These procedures were developed by SHEALY to comply with the sampling procedures recommended by SCDHEC, the US Environmental Protection Agency (EPA), the Resource Conservation and Recovery Act (RCRA), Groundwater Monitoring Technical Enforcement Guidance Document (TEGD) (1986), and published research findings. The protocol described was designed to insure that the integrity of the samples were maintained in the field, during transit to the laboratory and throughout the analytical procedures.

MONITORING PARAMETERS AND FREQUENCY I.A.

The following wells were sampled during March, 1999:

GW-1 GW-2 GW-3

Well K

Well J

Well H

Well P

Well I

These monitoring wells were analyzed for the following parameters:

*TDS

* Nitrate+Nitrite-N

*Sulfate

*Chloride

*TOC

* Alkalinity Bicarbonate

*Ammonia

* Cyanide

*Metals: As, Hg, Se, Pb, Al, Ba, Cd, Ca, Cr, Cu, Fe, Mg, Mn, Ni, K, Ag, Na, Zn

Dissolved Cu

I.B. SAMPLING PROTOCOL

The procedures described below are intended to insure that representative groundwater samples are collected. Procedures for measurement of the water table depth, measurement of total well depth, well evacuation, and sample collection are included.

For each well, all data collected were recorded on a Field Data Information Sheet. Prior to the initiation of activities at each well, all sampling personnel put on new, laboratory quality PVC gloves. These gloves were replaced as necessary during the well evacuation and sampling procedure. Prior to the collection of any groundwater quality data at each well, the surface integrity of the well was checked. Any problems which could affect groundwater sample integrity were noted on the Field Data Information Sheet.

I.B.1. Water Level Measurement

Prior to the evacuation of each monitoring well, the depth to the water table was determined with the use of an electronic water level indicator. The water level indicator uses a sensitive circuitry to activate a buzzer when electrical continuity is made at the probe. The sensitivity is set so that waters with conductivities greater than approximately one umhos/cm will close the circuit. After use at each well, the instrument was cleaned according to the "Field Cleaning Procedures," which are described in Section I.C.1. The depth to the water table was measured by turning the instrument on and then slowly lowering the instrument probe into the well until the buzzer sounded. The distance from the measuring point of the well to the water level was then measured and recorded. The instrument was calibrated in 0.05 foot increments. All measurements were made and estimated to the nearest 0.01 foot.

I.B.2. Total Depth Measurement

The total depth measurement is used in calculating the volume of water standing in the well casing. The total well depth was taken from historical data.

I.B.3. Well Evacuation

The purpose of the well evacuation procedure is to initiate the introduction of water from the surrounding aquifer into which the well is placed. By removing standing water from the well, a hydraulic gradient is created which results in water from the surrounding aquifer into the well. The quality of this water is representative of the water quality immediately surrounding the well.

Well evacuation and sampling of all wells at the site were done using 1.66 inch outside diameter, three foot long Teflon or stainless steel bailers with a single bottom check valve. All bailers were cleaned at the laboratory prior to use, and a separate bailer was used for each well. When field cleaning was required, the method outlined in Section I.C.1. was used and new 1/8 inch nylon twine was used for each well.

The following steps were followed for evacuation with Teflon bailers:

- 1. The depth to the water table was subtracted from the total well depth to determine the length of the water column. The water column length was multiplied by the appropriate conversion factor for that particular well casing diameter to determine the volume, in gallons, of water standing in the well casing. This volume was then multiplied by three to calculate the standard evacuation volume.
- 2. The bailer was lowered to a depth just below the water level in the well each time to insure adequate evacuation of the standing water.
- 3. The pH and Specific Conductivity were measured and recorded periodically during well evacuation. For high yield wells, well evacuation continued until the standard evacuation volume was removed and both pH and Specific Conductivity were relatively stable. Stability of the pH is defined as two consecutive measurements varying by no more than 10 percent. All evacuated volumes and field measurements were recorded on the Field Data Information Sheet.

Wells which were evacuated to dryness prior to reaching the standard evacuation volume were sampled as soon as a sufficient volume of water had entered the well. Field parameters were measured prior to sample collection to insure water quality stability.

I.B.4. Sample Collection

The primary consideration during the collection of groundwater samples is to insure that the sample is not altered or contaminated during withdrawal from the well and introduction into the sample container.

A complete set of pre-cleaned and pre-labeled sample containers were removed from the cooler and slowly filled with fresh sample, poured directly from the bailer. Preservatives were added to the sample bottles prior to leaving for the sampling event. Care was taken to insure that the bailer did not contact the sample bottle during filling. The filled bottles were then capped and securely placed into the pre-cleaned cooler. The Chain of Custody Form, was then completed for that well. Finally, the well was re-capped and locked.

I.C. FIELD QUALITY CONTROL

A strict quality control program is followed in the field by SHEALY to insure that sample integrity is maintained during sample collection and transit to the laboratory. In addition, all equipment and instruments are carefully maintained and calibrated in accordance with schedules and procedures described in SHEALY's Quality Control Manual entitled "SOP and QA Manual for Groundwater Sampling".

I.C.1. Field Cleaning Procedures

All field equipment and instrumentation are cleaned at the laboratory according to standard laboratory procedures upon return from each sampling trip. Field equipment and instrumentation include: sample coolers, pH and Specific Conductivity meters, and field measurement vessels. If instrumentation and field equipment were used on more than one well, it was cleaned according to the following field cleaning procedures:

- 1. Rinse item thoroughly with a 5% phosphate-free laboratory detergent solution.
- 2. Rinse item with deionized water, twice.

I.C.2. Field Instruments and Measuring Devices

Instruments and devices used to collect field data at the NEVADA GOLDFIELDS facility include: pH and Specific Conductivity meters and an electronic water level indicator.

The pH and Specific Conductivity meters were calibrated in the field prior to sampling. The pH meter was calibrated using a 4 SU standard and a 10 SU standard. The Specific Conductivity meter was also calibrated in the field according to SHEALY's Field Operation SOP and the manufacturer's specifications. All calibration records for both meters are recorded in the appropriate calibration log books maintained at Shealy.

I.C.3. Field Blanks

One set of field blanks was collected during the sampling event. At that time, one set of bottles was randomly removed from the sample cooler and labeled as "Field Blank". The Field Blank was obtained by filling a laboratory cleaned bailer with deionized water. this water was then poured into the labeled sample bottles. The deionized water is also used to rinse field equipment. Once filled, the field blanks were treated as samples and placed in the sample cooler for transport to the laboratory. Field blanks and groundwater samples were analyzed for the same parameters in order to assure quality control during sampling, transportation, and analysis.

I.C.4. Field Data Information Sheet

All pertinent field information was recorded on the Field Data Information Sheet as it was collected. This information includes: date of sampling, name of collector, monitoring well number, casing diameter and material of construction, well integrity, measuring point elevation, total well depth, depth to groundwater, volume of water in casing, method of evacuation and sampling, total volume of water evacuated, field measurements with time and volume evacuated, and field observations. Information on the Field Data Information Sheets was reviewed upon arrival at the laboratory and pertinent information transferred to the Certificate of analysis and noted as field measurements.

I.C.5. Sample Transportation and Chain of Custody

The transportation of groundwater samples from the time of collection to their arrival at the laboratory is an important part of the groundwater monitoring program. The mode of travel must be such that the sample is not altered physically, chemically, or biologically. The travel time to the laboratory must not interfere with the sample holding time. The Chain of Custody must also be maintained during the transportation process. Samples collected at the NEVADA GOLDFIELDS facility remained in the possession of SHEALY personnel and were transported to the laboratory within the allowed holding time of all the required parameters. Custody is defined as:

- 1. Being in one's physical possession.
- 2. Being in one's view, after being in one's possession.
- 3. Being in a designated secure area.

Upon arrival at the laboratory, the sampling personnel relinquished the samples to the laboratory sample custodian. This transaction was documented on the Chain of Custody Form.

Reviewed By		
•	Milton P. Quattlebaum	Date
	Field Service Supervisor	

II. ANALYTICAL PROTOCOL

The analytical protocols used at SHEALY to insure that groundwater quality at the NEVADA GOLDFIELDS facility was accurately detected and quantified were taken two EPA sources, Methods for Chemical Analyses of Water and Wastes and Test Methods for Evaluation Solid Waste. The analysis for metals was for the total recoverable fraction. Laboratory Quality Control/Quality Assurance procedures are presented in detail in the SHEALY's SOP Manuals.

Scientists and Consultants

106 VANTAGE POINT DRIVE CAYCE, SOUTH CAROLINA 29033

CERTIFICATE OF ANALYSIS

(803) 791-9700 FAX (803) 791-9111 www.shealyenvironmental.com

SC DHEC No. 32010

NC DEHNR No. 329

Client:

NEVADA GOLDFIELDS PO Box 1530 McCormick, SC 29

29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161192

Description: GW-1

Coll. Date: 03/16/99

Coll. Time:

QA/QC Officer ______

V.P. Analytical __A

Date Received: 03/17/99 Date Reported: 03/28/99

				Date	Date	
Parameters	Method	Result	Units	Prepared	Analyzed	Anal.
Well Depth		36.95	ft.		03/16/99	MPQ
Water Level Depth From Top of Casing		24.18	ft.		03/16/99	MPQ
pH-Field at 16.0 C	150.1	3.97	បខ		03/16/99	MPQ
Specific Conductance at 25 C - Field	120.1	348	umhos/cm		03/16/99	MPQ
Temperature-Field INORGANICS	170.1	16.0	С		03/16/99	MPQ
Alkalinity Bicarbonate	SM4500D	<10.0	mg/l		03/24/99 1343	NWD
Ammonia-N	350.3	2.94	mg/l		03/18/99 0930	EMD
Chloride	300.0	6.76	mg/l		03/19/99	JPS
Cyanide-Total	335.2	<0.010	ma/l	03/24/99		JPS
Cyaniac local	333.2	70.020	9/-	0800	1300	
Nitrate + Nitrite	353.2	0.639	mg/l		03/18/99	NWD
Sulfate	375.4	304	mg/l		03/23/99	.TPS
Sullace	3/3.4	304			1100	015
TOC	415.1	2.6	mg/l		03/19/99	JPS
			/9		1949	
TDS	160.1	320	mg/l		03/19/99 1600	MCM
wemat o						
METALS	***	- 44		/ /		
Aluminum	6010B	5.41	mg/1	03/18/99		FTS
	6010D	.0 005	/7	0830	1107	TO THE STATE OF TH
Arsenic	6010B	<0.005	mg/1	03/18/99		FTS
Barium	C0100	0 040	/7	0830	1107	TO C
Barium	6010B	0.049	mg/1	03/18/99 0830	1107	FTS
Cadmium	6010B	0.071	ma /1	03/18/99		Ψ#C
Cadmium	POTOR	0.071	шд/ т	03/18/99	1107	F15
Calcium	6010B	15.5	ma/1	03/18/99		P#C
.alcium	GOTOR	13.3	mg/ I	0830	1107	F 13
muin	6010B	<0.005	ma/1	03/18/99		PTQ
41.000	40109	70.003	g/ 1	0830	1107	213
	6010B	2.14	mg/1	03/18/99		FTS
	*****		3/-	0830	1107	
	6010B	6.77	mg/l	03/18/99		FTS
			_3, _	0830	1107	
	6010B	<0.003	mq/l	03/18/99		FTS
	7		•	0830	1107	
	6010B	7.39	mg/l	03/18/99	03/24/99	FTS
				0830	1107	
	6010B	1.81	mg/l	03/18/99	03/24/99	FTS
				0830	1107	
	6010B	0.047	mg/1	03/18/99	03/24/99	FTS
				0830	1107	

Page 2 (Continuation of 161192)

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.
Potassium	6010B	0.824	mg/l	03/18/99 0830	03/24/99 1107	FTS
Selenium	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1107	FTS
Silver	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1107	FTS
Sodium	6010B	43.1	mg/l	03/18/99 0830	03/24/99 1517	FTS
Zinc	6010B	2.08	mg/l	03/18/99 0830	03/24/99 1107	FTS
Mercury	7470A	0.004	mg/l	03/19/99 0830	03/22/99 1300	DPS
Dissolved Copper	6010B	1.96	mg/l	03/18/99 0830	03/24/99 1102	FTS

Scientists and Consultants

106 VANTAGE POINT DRIVE CAYCE, SOUTH CAROLINA 29033

CERTIFICATE OF ANALYSIS

(803) 791-9700 FAX (803) 791-9111 www.shealyenvironmental.com

SC DHEC No. 32010

NC DEHNR No. 329

Client:

NEVADA GOLDFIELDS PO Box 1530

McCormick, SC 29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161193

Description: GW-2

Coll. Date: 03/16/99

Coll. Time:

Date Received: 03/17/99 Date Reported: 03/31/99 QA/QC Officer Ma~

0111ce1 <u>70121/-</u>

V.P. Analytical

				Date	Date	
Parameters	Method	Result	Units	Prepared	Analyzed	Anal.
Well Depth		28.20	ft.		03/16/99	MPQ
Water Level Depth From Top of Casing		21.61	ft.		03/16/99	MPQ
pH-Field at 14.0 C	150.1	2.46	នប		03/16/99	MPQ
Specific Conductance at 25 C - Field		553	umhos/cm		03/16/99	_
Temperature-Field INORGANICS	170.1	14.0	C		03/16/99	-
Alkalinity Bicarbonate	SM4500D	67.2	mg/l		03/24/99 1343	NWD
Ammonia-N	350.3	1.50	mg/l		03/18/99 0930	EMD
Chloride	300.0	3.49	mg/l		03/19/99 1130	JPS
Cyanide-Total	335.2	<0.010	mg/l	03/29/99 1300	03/30/99 1300	JPS
Nitrate + Nitrite	353.2	0.04	mg/l		03/18/99 1110	NWD
Sulfate	375.4	546	mg/l		03/23/99 1100	JPS
TOC	415.1	1.2	mg/l		03/19/99 2008	JPS
TDS	160.1	396	mg/l		03/19/99 1600	MCM
Mana t C						
METALS Aluminum	6010B	13.4	mg/l	03/18/99 0830	03/24/99 1117	FTS
Arsenic	6010B	<0.005	mg/l	03/18/99 0830		FTS
Barium	6010B	0.021	mg/l	03/18/99 0830		FTS
Cadmium	6010B	0.034	mg/l	03/18/99 0830	03/24/99 1117	FTS
Calcium	6010B	10.8	mg/l	03/18/99 0830	03/24/99 1117	FTS
Chromium	6010B	0.020	mg/l	03/18/99 0830	03/24/99 1117	FTS
Copper	6010B	1.84	mg/l	03/18/99 0830	03/24/99 1117	FTS
Iron	6010B	38.8	•	03/18/99 0830	1117	
Lead	6010B	<0.003	_	03/18/99 0830	1117	
Magnesium	6010B	7.66	mg/l	03/18/99 0830	03/24/99 1117	fts
Manganese	6010B	0.567	•	03/18/99 0830	1117	
Nickel	6010B	0.082	mg/l	03/18/99 0830	03/24/99 1117	PTS

Page 2 (Continuation of 161193)

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.	*-
Potassium	6010B	1.12	mg/l	03/18/99 0830	03/24/99	FTS	
Selenium	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1117	FTS	
Silver	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1117	FTS	
Sodium	6010B	8.11	mg/l	03/18/99 0830	03/24/99 1519	FTS	
Zinc	6010B	1.88	mg/l	03/18/99 0830	03/24/99 1117	FTS	
Mercury	7470A	0.003	mg/l	03/19/99 0830	03/22/99 1300	DPS	
Dissolved Copper	6010B	1.78	mg/l	03/18/99 0830	03/24/99 1112	FTS	

Scientists and Consultants

106 VANTAGE POINT DRIVE CAYCE, SOUTH CAROLINA 29033

CERTIFICATE OF ANALYSIS

(803) 791-9700 FAX (803) 791-9111 www.shealyenvironmental.com

SC DHEC No. 32010

NC DEHNR No. 329

Client:

NEVADA GOLDFIELDS PO Box 1530 McCormick, SC 29

29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161194

Description: GW-3

Coll. Date: 03/16/99

Coll. Time:

Date Received: 03/17/99 Date Reported: 03/31/99 QA/QC Officer Man

V.P. Analytical

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.
Well Depth		22.60	ft.		03/16/99	MPO
Water Level Depth From Top of Casing		6.90	ft.		03/16/99	
pH-Field at 13.0 C	150.1	6.41	80		03/16/99	
Specific Conductance at 25 C - Field		200			03/16/99	
Temperature-Field	170.1	13.0	C		03/16/99	
INORGANICS Alkalinity Bicarbonate	SM4500D	70.2	mg/l		03/24/99 1343	NWD
Ammonia-N	350.3	1.97	mg/l		03/18/99	EMD
Chloride	300.0	9.23	mg/1		03/19/99 1130	JPS
Cyanide-Total	335.2	0.169	mg/l	03/29/99 0830		JPS
Nitrate + Nitrite	353.2	0.586	mg/l		03/18/99 1110	NWD '
Sulfate	300.0	163	mg/l		03/19/99	JPS
TOC	415.1	2.7	mg/l		03/19/99 2027	JPS
TDS	160.1	384	mg/l		03/19/99	WCM
amma a d						
METALS Aluminum	6010B	2.09	mg/1	03/24/99 0830	03/25/99 1229	FTS
Arsenic	6010B	<0.005	mg/l	03/24/99 0830		FTS
Barium	6010B	0.035	mg/l	03/24/99 0830	03/25/99 1229	PTS
Cadmium	6010B	<0.002		03/24/99 0830	1229	
Calcium	6010B	31.1	mg/l	03/24/99 0830	03/25/99 1229	FTS
Chromium	6010B	<0.005	mg/l	03/24/99 0830	03/25/99 1229	FTS
Copper	6010B	0.074		03/24/99 0830	0041	
Iron	6010B	2.60		03/24/99 0830	1229	
Lead	6010B	<0.003	-	03/24/99 0830	1229	
Magnesium	6010B	18.2		03/24/99 0830	1229	
Manganese	6010B	0.892		03/24/99 0830	1229	
Nickel	6010B	<0.010	mg/l	03/24/99 0830	03/25/99 1229	fts

Page 2 (Continuation of 161194)

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.
Potassium	6010B	0.384	mg/l	03/24/99 0830	03/25/99 1229	FTS
Selenium	6010B	0.029	mg/l	03/24/99 0830	03/25/99 1229	FTS
Silver	6010B	<0.005	mg/l	03/24/99 0830	03/25/99 1229	fts
Sodium	6010B	18.7	mg/l	03/24/99 0830	03/25/99 1522	FTS
Zinc	6010B	0.039	mg/l	03/24/99 0830	03/25/99 1229	FTS
Mercury	7470A	<0.0002	mg/l	03/19/99 0830	03/22/99 1300	DPS
Dissolved Copper	6010B	0.046	mg/l	03/24/99 0830	03/25/99 0036	FTS

Scientists and Consultants

106 VANTAGE POINT DRIVE CAYCE, SOUTH CAROLINA 29033

CERTIFICATE OF ANALYSIS

(803) 791-9700 FAX (803) 791-9111 www.shealvenvironmental.com

SC DHEC No. 32010

NC DEHNR No. 329

Coll. Date: 03/16/99

Client:

NEVADA GOLDFIELDS PO Box 1530 McCormick, SC 29

29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161198 Description: Well H

Coll. Time:

QA/QC Officer

V.P. Analytical

Date Received: 03/17/99 Date Reported: 03/31/99

Date Result Units Prepared Analyzed Anal. Method **Parameters** 53.00 03/16/99 MPQ ft. Well Depth 03/16/99 MPQ Water Level Depth From Top of Casing 8.98 ft. pH-Field at 19.0 C 150.1 5.37 ST 03/16/99 MPQ umhos/cm 03/16/99 MPQ Specific Conductance at 25 C - Field 120.1 88.54 Temperature-Field 170.1 19.0 C 03/16/99 MPQ INORGANICS SM4500D <10.0 03/24/99 NWD Alkalinity Bicarbonate mg/11343 03/18/99 EMD mg/l 350.3 0.874 Ammonia-N 0930 03/19/99 JPS Chloride 300.0 7.28 mq/11130

Cyanide-Total	335.2	<0.010	mg/l	03/29/99 1300	03/30/99	JPS
Nitrate + Nitrite	353.2	2.56	mg/l	2300	03/18/99	NWD
Sulfate	300.0	29.2	mg/l		03/19/99	JPS
TOC	415.1	1.2	mg/l		03/19/99	JPS
TDS	160.1	16	mg/l		03/19/99	MCM
METALS						
Aluminum	6010B	<0.050	mg/l	03/18/99 0830	03/24/99 1330	FTS
Arsenic	6010B	<0.005	mg/l	03/18/99 0830		FTS
Barium	6010B	0.017	mg/l	03/18/99 0830		FTS
Cadmium	6010B	<0.002	mg/l	03/18/99		FTS
Calcium	6010B	1.13	mg/l	0830 03/18/99	03/24/99	FTS
Chromium	6010B	<0.005	mg/l	0830 03/18/99	• •	FTS
Copper	6010B	0.032	mg/l	0830 03/18/99		FTS
Iron	6010B	0.078	mg/l	0830 03/18/99	• •	FTS
Lead	6010B	<0.003	mg/l	0830 03/18/99		FTS
Magnesium	6010B	0.605	mg/l	0830 03/18/99		FTS
Manganese	6010B	0.065	mg/l	0830 03/18/99		FTS
Nickel	6010B	<0.010	mg/l	0830 03/18/99 0830	1330 03/24/99 1330	FTS

Page 2 (Continuation of 161198)

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.	
Potassium	6010B	<0.200	mg/l	03/18/99 0830	03/24/99	FTS	
Selenium	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1330	FTS	
Silver	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1330	FTS	
Sodium	6010B	20.3	mg/l	03/18/99 0830	03/24/99 1531	fts	
Zinc	6010B	20.3	mg/l	03/18/99 0830	03/24/99 1330	PTS	
Mercury	7470A	<0.0002	mg/l	03/26/99 0830	03/29/99 0700	FTC	
Dissolved Copper	6010B	0.019	mg/l	03/18/99 0830	03/24/99 1325	FTS	

Scientists and Consultants

106 VANTAGE POINT DRIVE **CAYCE, SOUTH CAROLINA 29033**

CERTIFICATE OF ANALYSIS

(803) 791-9700 FAX (803) 791-9111 www.shealyenvironmental.com

SC DHEC No. 32010

NC DEHNR No. 329

Coll. Date: 03/16/99

Client:

NEVADA GOLDFIELDS PO Box 1530 McCormick, SC 29

29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161199 Description: Well I

Coll. Time:

QA/QC Officer Co

Date Received: 03/17/99 Date Reported: 03/31/99

V.P. Analytical

Parameters	Method	Result	W-14-	Date Prepared	Date	ano!
	method		UNICB	Prepared	Analyzed	Andi.
Well Depth		88.30	ft.		03/16/99	-
Water Level Depth From Top of Casing		52.00	ft.		03/16/99	
pH-Field at 20.0 C	150.1	5.20	នប		03/16/99	
Specific Conductance at 25 C - Field		81.4			03/16/99	-
Temperature-Field INORGANICS	170.1	20.0	С		03/16/99	WĿŌ
Alkalinity Bicarbonate	SM4500D	<10.0	mg/l		03/24/99 1343	NWD
Ammonia-N	350.3	0.396	mg/l		03/18/99 0930	EMD
Chloride	300.0	10.7	mg/l		03/19/99	JPS
Cyanide-Total	335.2	0.021	mg/l	03/29/99		JPS
				1300	1300	,
Nitrate + Nitrite	353.2	1.23	mg/l		03/18/99 1110	NWD
Sulfate	300.0	17.5	mg/l		03/19/99	JPS
					1130	
TOC	415.1	2.5	mg/l		03/19/99 2318	JPS
TDS	160.1	<10	mg/l		03/19/99	MCM
103	100.1	720	mg/ ±		1600	
3.4						
METALS						
Aluminum	6010B	0.220	mg/1	03/18/99		fts
				0830	1340	
Arsenic	6010B	<0.005	mg/l	03/18/99		FTS
			4-	0830	1340	
Barium	6010B	0.030	mg/l	03/18/99		FTS
				0830	1340	
Cadmium	6010B	<0.002	mg/l	03/18/99		FTS
			45	0830	1340	
Calcium	6010B	1.81	mg/1	03/18/99		FTS
Observed our	C010D	-0.005	/1	0830	1340	www.
Chromium	6010B	<0.005	mg/1	03/18/99 0830	1340	FTS
Connon	6010B	0.010	ma/1	03/18/99	7	pro
Copper	GOTOR	0.010	mg/ I	03/18/99	1340	FIS
Iron	6010B	0.338	ma/1	03/18/99		TOTAL TO
11011	00105	0.550	mg/ I	0830	1340	715
Lead	6010B	<0.003	ma/1	03/18/99		FT의
2086	00105	70.005		0830	1340	
Magnesium	6010B	2.17	mα/1	03/18/99		PTS
32	***************************************			0830	1340	
Manganese	6010B	0.050	mg/1	03/18/99		FTS
				0830	1340	
Nickel	6010B	<0.010	mg/1	03/18/99		FTS
				0830	1340	

Page 2 (Continuation of 161199)

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.
Potassium	6010B	0.290	mg/l	03/18/99	03/24/99	FTS
Selenium	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1340	FTS
Silver	6010B	<0.005	-	03/18/99 0830	1340	
Sodium	6010B	8.84		03/18/99 0830	1540	
Zinc	6010B	0.027	•	03/18/99 0830	1340	
Mercury	7470A	0.0003	•	03/26/99 0830	0700	•
Dissolved Copper	6010B	0.006	mg/l	03/18/99 0830	03/24/99 1335	FTS

Scientists and Consultants

106 VANTAGE POINT DRIVE **CAYCE, SOUTH CAROLINA 29033**

CERTIFICATE OF ANALYSIS

(803) 791-9700 FAX (803) 791-9111 www.shealyenvironmental.com

SC DHEC No. 32010

NC DEHNR No. 329

Client:

NEVADA GOLDFIELDS PO Box 1530 McCormick, SC 29

29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161197

Description: Well J

Date Received: 03/17/99 Date Reported: 03/31/99 Coll. Date: 03/16/99

Coll. Time:

QA/QC Officer A

V.P. Analytical M

				Date	Date	
Parameters	Method	Result	Units	Prepared		Anal.
Well Depth		63.90	ft.		03/16/99	MPQ
Water Level Depth From Top of Casing		59.55	ft.		03/16/99	MPQ
pH-Field at 20.0 C	150.1	5.64	SU		03/16/99	-
Specific Conductance at 25 C - Field	120.1	54.3	umhos/cm		03/16/99	MPO
Temperature-Field INORGANICS	170.1	20.0	C		03/16/99	
Alkalinity Bicarbonate	SM4500D	<10.0	mg/l		03/24/99 1343	NWD
Ammonia-N	350.3	1.05	mg/l		03/18/99 0930	EMD
Chloride	300.0	4.97	mg/l		03/19/99 1130	JPS
Cyanide-Total	335.2	<0.010	mg/l	03/29/99 1300		JPS
Nitrate + Nitrite	353.2	0.416	mg/l		03/18/99	NWD .
Sulfate	300.0	16.9	mg/l		03/19/99 1130	JPS
TOC	415.1	<1.0	mg/l		03/19/99 2240	JPS
TDS	160.1	<10	mg/l		03/19/99 1600	MCM
remark o						
METALS Aluminum	6010B	0.180	mg/l	03/18/99		FTS
Arsenic	6010B	<0.005	mg/l	0830 03/18/99 0830	1254 03/24/99 1254	FTS
Barium	6010B	0.009	mg/l	03/18/99 0830		FTS
Cadmium	6010B	<0.002	mg/l	03/18/99 0830		FTS
Calcium	6010B	1.58	mg/l	03/18/99 0830		FTS
Chromium	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1254	FTS
Copper	6010B	0.013	mg/l	03/18/99 0830	03/24/99 1254	FTS
Iron	6010B	1.23	mg/l	03/18/99 0830	03/24/99 1254	FTS
Lead	6010B	<0.003	mg/l	03/18/99 0830	03/24/99 1254	FTS
Magnesium	6010B	3.31	mg/l	03/18/99 0830	03/24/99 1254	FTS
Manganese	6010B	0.025	mg/l	03/18/99 0830	03/24/99 1254	FTS
Nickel	6010B	<0.010	mg/l	03/18/99 0830	03/24/99 1254	FTS

Page 2 (Continuation of 161197)

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.
Potassium	6010B	<0.200	mg/l	03/18/99 0830	03/24/99 1254	FTS
Selenium	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1254	FTS
Silver	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1254	FTS
Sodium	6010B	4.70	mg/l	03/18/99 0830	03/24/99 1529	FTS
Zinc	6010B	0.016	mg/l	03/18/99 0830	03/24/99 1254	FTS
Mercury	7470A	<0.0002	mg/l	03/26/99 0830	03/29/99 0700	FTC
Dissolved Copper	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1249	FTS

Scientists and Consultants

106 VANTAGE POINT DRIVE CAYCE, SOUTH CAROLINA 29033

CERTIFICATE OF ANALYSIS

(803) 791-9700 FAX (803) 791-9111 www.shealyenvironmental.com

SC DHEC No. 32010

NC DEHNR No. 329

Client:

NEVADA GOLDFIELDS PO Box 1530 McCormick, SC 29

29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161195 Description: Well K

Coll. Date: 03/16/99

Coll. Time:

QA/QC Officer _ Mar

Date Received: 03/17/99 Date Reported: 03/31/99

V.P. Analytical MA

				Date	Date	
Parameters	Method	Result	Units	Prepared	Analyzed	Anal.
Well Depth		81.53	ft.		03/16/99	MPQ
Water Level Depth From Top of Casing		61.45	ft.		03/16/99	MPQ
pH-Field at 20.0 C	150.1	6.72	នប		03/16/99	-
Specific Conductance at 25 C - Field		81.4	umhos/cm		03/16/99	MPO
Temperature-Field INORGANICS	170.1	20.0	C		03/16/99	
Alkalinity Bicarbonate	SM4500D	36.0	mg/l		03/24/99 1343	NWD
Ammonia-N	350.3	0.586	mg/l		03/18/99 0930	EMD
Chloride	300.0	4.97	mg/l		03/19/99	JPS
Cyanide-Total	335.2	<0.010	mg/l	03/29/99 1300		JPS
Nitrate + Nitrite	353.2	0.102	mg/l		03/18/99 1110	NMD ,
Sulfate	300.0	4.76	mg/l		03/19/99 1130	JPS
TOC	415.1	1.1	mg/l		03/19/99 2046	JPS
TDS	160.1	24	mg/l		03/19/99 1600	MCM
Memato						
METALS Aluminum	6010B	2.03	mg/l	03/18/99 0830	03/24/99 1234	FTS
Arsenic	6010B	<0.005	mg/l	03/18/99 0830		fts
Barium	6010B	0.011	mg/l	03/18/99 0830	03/24/99 1234	FTS
Cadmium	6010B	<0.002	mg/l	03/18/99 0830	03/24/99 1234	FTS
Calcium	6010B	6.32	mg/l	03/18/99 0830	03/24/99 1234	FTS
Chromium	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1234	FTS
Copper	6010B	0.011	mg/l	03/18/99 0830	03/24/99 1234	FTS
Iron	6010B	3.97	mg/l	03/18/99 0830	03/24/99 1234	FTS
Lead	6010B	<0.003	mg/l	03/18/99 0830	03/24/99 1234	FTS
Magnesium	6010B	5.32	mg/l	03/18/99 0830	03/24/99	FTS
Manganese	6010B	0.086	mg/l	03/18/99 0830	03/24/99 1234	FTS
Nickel	6010B	<0.010	mg/l	03/18/99 0830	03/24/99 1234	FTS

Page 2 (Continuation of 161195)

ingo i (continuedos or rollos)				Date	Date		
Parameters	Method	Result	Units	Prepared	Analyzed	Anal.	
Potassium	6010B	0.225	mg/l	03/18/99 0830	03/24/99 1234	FTS	
Selenium	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1234	FTS	
Silver	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1234	FTS	
Sodium	6010B	5.52	mg/l	03/18/99 0830	03/24/99 1525	FTS	
Zinc	6010B	0.051	mg/l	03/18/99 0830	03/24/99 1234	FTS	
Mercury	7470A	<0.0002	mg/l	03/19/99 0830	03/22/99 1300	FTC	
Dissolved Copper	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1229	FTS	

Scientists and Consultants

106 VANTAGE POINT DRIVE CAYCE, SOUTH CAROLINA 29033

CERTIFICATE OF ANALYSIS

(803) 791-9700 FAX (803) 791-9111 www.shealyenvironmental.com

SC DHEC No. 32010

NC DEHNR No. 329

Client:

NEVADA GOLDFIELDS PO Box 1530 McCormick, SC 29

29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161196

Description: Well P

Date Received: 03/17/99 Date Reported: 03/31/99 Coll. Date: 03/16/99

Coll. Time:

QA/QC Officer Mar

V.P. Analytical _

				Date	Date	_
Parameters	Method ———————	Result	Units	Prepared	Analyzed	Anal.
Well Depth		89.18	ft.		03/16/99	MPQ
Water Level Depth From Top of Casing		75.42	ft.		03/16/99	MPQ
pH-Field at 18.0 C	150.1	6.61	នប		03/16/99	MPQ
Specific Conductance at 25 C - Field	120.1	104	umhos/cm		03/16/99	MPQ
Temperature-Field INORGANICS	170.1	18.0	С		03/16/99	MPQ
Alkalinity Bicarbonate	SM4500D	61.5	mg/l		03/24/99 1343	NWD
Ammonia-N	350.3	0.963	mg/l		03/18/99 0930	EMD
Chloride	300.0	4.75	mg/l		03/19/99 1130	JPS
Cyanide-Total	335.2	<0.010	mg/l	03/29/99 1300	03/30/99 1300	JPS
Nitrate + Nitrite	353.2	0.046	mg/l		03/18/99 1110	NWD '
Sulfate	300.0	5.52	mg/l		03/19/99 1130	JPS
TOC	415.1	<1.0	mg/l		03/19/99 2105	JPS
TDS	160.1	80	mg/l		03/19/99 1600	WCM
METALS						
Aluminum	6010B	0.111	mg/l	03/18/99 0830	03/24/99	FTS
Arsenic	6010B	<0.005	mg/l	03/18/99 0830		FTS
Barium	6010B	<0.005	mg/l	03/18/99 0830		FTS
Cadmium	6010B	<0.002	mg/l	03/18/99 0830	03/24/99 1244	FTS
Calcium	6010B	5.59	mg/l	03/18/99 0830	03/24/99 1244	FTS
Chromium	6010B	<0.005		03/18/99 0830	1244	
Copper	6010B	0.010	mg/l	03/18/99 0830	03/24/99 1244	fts
Iron	6010B	0.199	mg/l	03/18/99 0830	03/24/99 1244	fts
Lead	6010B	<0.003	mg/l	03/18/99 0830	03/24/99 1244	FTS
Magnesium	6010B	7.78	mg/l	03/18/99 0830	03/24/99 1244	FTS
Manganese	6010B	0.014		03/18/99 0830	1244	
Nickel	6010B	<0.010	mg/l	03/18/99 0830	03/24/99 1244	FTS

Page 2 (Continuation of 161196)

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.	*Days
Potassium	6010B	0.200	mg/l	03/18/99 0830	03/24/99 1244	FTS	
Selenium	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1244	FTS	
Silver	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1244	FTS	
Sodium	6010B	7.96	mg/l	03/18/99 0830	03/24/99 1527	FTS	
Zinc	6010B	0.027	mg/l	03/18/99 0830	03/24/99 1244	FTS	
Mercury	7470A	<0.0002	mg/l	03/19/99 0830	03/22/99 1300	DPS	
Dissolved Copper	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1239	FTS	

Scientists and Consultants

106 VANTAGE POINT DRIVE CAYCE, SOUTH CAROLINA 29033

CERTIFICATE OF ANALYSIS

(803) 791-9700 FAX (803) 791-9111 www.shealyenvironmental.com

SC DHEC No. 32010

NC DEHNR No. 329

Client:

NEVADA GOLDFIELDS PO Box 1530 McCormick, SC 29

29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161200 Description: Field Blank Coll. Date: 03/16/99

Coll. Time:

Date Received: 03/17/99

QA/QC Officer _____

Date Reported: 03/31/99

V.P. Analytical MA

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.
INORGANICS				 .		
Alkalinity Bicarbonate	8M4500D	<10.0	mg/l		03/24/99	NWD
Ammonia-N	350.3	0.955	mg/l		03/23/99	WCM
Chloride	300.0	<1.00	mg/l		03/19/99 1130	JPS
Cyanide-Total	335.2	<0.010	mg/l	03/29/99 1300	03/30/99 1300	JPS
Nitrate + Nitrite	353.2	<0.020	mg/l		03/17/99 1555	NWD
Sulfate	300.0	<1.00	mg/l		03/19/99 1130	JPS
TOC	415.1	<1.0	mg/l		03/19/99 2336	JPS
TDS	160.1	<10	mg/l		03/19/99 1600	MCM
METALS						
Aluminum	6010B	<0.050	mg/l	03/18/99 0830	03/24/99 1350	FTS
Arsenic	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1350	FTS
Barium	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1350	FTS
Cadmium	6010B	<0.002	mg/l	03/18/99 0830	03/24/99 1350	FTS
Calcium	6010B	<0.050	mg/l	03/18/99 0830	03/24/99 1350	FTS
Chromium	6010B	<0.005	mg/l	03/18/99 0830		FTS
Copper	6010B	<0.005	mg/l	03/18/99 0830		FTS
Iron	6010B	<0.050	mg/l	03/18/99 0830		FTS
Lead	6010B	<0.003	mg/l	03/18/99 0830	03/24/99 1350	FTS
Magnesium	6010B	<0.030	mg/l	03/18/99 0830	03/24/99 1350	FTS
Manganese	6010B	<0.015	mg/l	03/18/99 0830		FTS
Nickel	6010B	<0.010	mg/l	03/18/99 0830		FTS
Potassium	6010B	<0.200	mg/l	03/18/99 0830		FTS
Selenium	6010B	<0.005	mg/l	03/18/99 0830		FTS
Silver	6010B	<0.005	mg/l	03/18/99 0830		FTS

Parameters of 161200)

Method 6010B	Result	Units Prepared Analyzed Anal.
	<0.100	Prepared April
0010B		mg/l on a seed Anal
7400	<0.005	20/39 03/2
7470A 6010B	<0.0002	128/99 03/24
108	<0.005	-0/40/99 na/na
		mg/1 03/18/99 07/00 PTC 0830 03/24/99 PTS 1345
		<0.005

DEPTH TO GROUNDWATER SUMMARY

NEVADA GOLDFIELDS McCormick, SC

WELL NUMBER	DGW (feet)
GW-1	24.18
GW-2	21.61
GW-3	6.90
Well K	61.45
Well H	53.00
Well P	75.42
Well I	52.00
Well J	59.55

CHAIN OF CUSTODY #

SHEALY ENVIRONMENTAL SERVICES, INC. 106 Vantage * 'nte Drive

Cayce, South ina 29033
Telephone No. (803) 791-9700 Fax No. (803) 791-9111

	*1geor
NPDES #	
County	
Receiving Stream	

CHAIN OF CUSTODY RECORD

County	
Receiving Stream	
O .45-11 A1-	

Reporting Address <u>McC</u> の	rnick	, SC		_			S	AMI	PLE	E Al	NAI	LYS	SIS	RE	EQI	UIR	E)		_		Outfall No.
			· · · · · ·	_[L		L											←PRESERVATION (CODE) LAB USE ONLY
Attention 5 co + L	l	P.O. N o			nductivity		<u>.</u>	S - Specify OX - Specify		pecify	ss/PCBs - Specify	Sep	henol	rease		Solids - Specify	8	- Specify	Toxicity - Specify	1000	Deschud Gu	CODE: A = None B = HNO3 C = H2SO4 D = NaOH E = ICE Program Area (Circle) DW
Sample ID (Location)	Yr. 1999 DATE	TIME #	SOLID	GRAB	F 8	8	Specify	METAL TOO) <u>E</u>	Wedned S	Pesticide	Herbic	Total Phenol	Oil & G	BNAs	Solids	Cyanid	Coliform	Toxicity	General	Drs	
GW-1	Start Mar	ķ		Ê				XX									X				X	General-TDS, CI, Nitrate/wither
GW-2	Start Finish	X		Ī	5		X	χχ	,								X			X	χ	Metals-As, Hg, Se, Pb, Al, Ba, Cd, Ca, Cr, Cu, Fe, Mg, Mn 161193
GW-3	Start	X	,	2	5		γ	ХХ	/								X			X	У	Ni, K, Ag, Na, Zn 161194
Well K	Start	X	,	3	5		Х	ΧX	′								Х			X	χ	161195
Well P	Start Finish	×	,	5	5		X	<u>'</u> Χ	,								Х			X	X	141196
well J	Start Finish	X		E	5		χ	χX	,								χ			Х	X	161197
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We/1 1	Start IC Mar 1994 Finish	<u> </u>		E	5		X	x X									X			<u></u>	χ	
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SHEALY ENVIRONMENTAL SERVICES, INC. 106 Vantage inte Drive

Cayce, South lina 29033
Telephone No. (803) 791-9700 Fax No. (803) 791-9111

NPDES #	
County	

CHAIN OF CUSTODY RECORD

CHAIN OF CUSIODY #
Client Name Nevada Coldields Receiving Stream Re

eporting Address McCo	: L	51						111												11			JIV	Outfall No.	
eporting Address	MICK	, 50	_			Г	1	- 1	SA	MP	LE	AN	IAL	YS.	15	RE	QU	JIRI	ED		_			Outfall No.	3/
ttention Scott Wi	•				_ _	 	vıty	_	ecify.	pecify			s - Specify		+	1	1	<u>*</u>		200		77	3	←PRESERVATION (CODE) CODE: A = None B = HNO3 C = H2SO4	Program Area (Circle) DW CWAMPDES RCBA SPISO
elephone No.		J.O. No.	_			tame	duct	. ,	- S	S-X		secuty equired	% PCB	8	Dua _E	9589		Spec	8	9	} ;	8		C = H2SO4 D = NaOH E = ICE F =	SP/LIO Other:
Sample ID (Location)	Yr. 1999 DATE	P.O. No.	WELL	SOLID	GRAB	* of	PH. Co	Numents	Specify		EX EX	VOC - St Method r	Pesticida	Herbica	Total Phenol	9 IO	BNAs	Solids	Conform	Townsite		Deskal C	200	REMARKS	SESI LAB I.D.
Field Blank	Start 16 Mox																1						1	General-TDS, Cl, Nitrate/Nitr	k
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	Start	-							ŀ								ł							Nuts-NH3, TOC	
	Start		Н	\vdash	\perp	\vdash		+	+	\perp	\vdash	-		\dashv	\dashv	+	\dashv	+	+	\perp	4	+	+	Metals-As, Hg, Se, Pb,	-
	Finish				İ																			Nuts-NH3, TOC Metals-As, Hg, Se, Pb, Al, Ba, Cd, Ca, Cr, Cu, Fe, Mg, Mn, Ni, K Ag, Na, Zn	
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SAMPLES O CONTROL OF SIgnature:	Cally	E		VTin				eceiv	ed b	by (S	ig.)	<u> </u>		_	,-1-					Dat	te/T	ime		Hazards Associated with Sample	Custody Seal Intact (Circle) YES NO NONE Receipt TRCmg/l
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Relinquished by (Sig.)		C	Date	/Tin	ne		4	ab R		by (9 Ц	Sig.)	QL	V					i	17	Pat	7	ime 19	(5		Received on ice (Circle) (YES) NO ICE PACK
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Field Data Information Sheet For Groundwater Sampling

Page	of		

Shealy Environmental Services, Inc. 106 Vantage Point Drive Cayce, S.C. 29033

Date (MM-DD-YY)	March 16, 1999		Casing Diameter: 4 inches	Casing Material: PVC - Metal
Field Personnel	MPQ		Guard Pipe: PVC Meta) - N	o Locking Cap: Y- N
Facility Name N	EVADA GOLDFIELDS, I	NC.	Protective Abutment: Y -	N Integrity Satisfactory: Y - N
Well ID# GW /		* 	Well Yield: Low - Mod Hig	h
Weather Conditions Clear Cold	Air Temperat	ture ^o C.	Remarks:	
Total Well Depth (TWD) =	36.95			
Depth To Groundwater (DGW) = 24,18				
Length Of Water Column (LWC) = 12.7	7			
1 Casing Volume (OCV) = LWC x . 652	= 8,33	gal.		
3 Casing Volumes = 24,99	gal. = Stand	ard Evacuation Volume		
Total Volume of Water Removed =		gal.		
Method of Well Evacuation	SSB WW GP Other			
Method of Sample Collection	SSB WW GP Other			
TB - Teflon Bailer 1.5" SSB - Stainless Steel Bailer 2" WW - Well Wizard 3"	stants for Casing Diameters 2 = 0.092 5" = 1.02 = 0.163 6" = 1.47 = 0.367 7" = 2.00 = 0.652 8" = 2.61			
		FIELD ANALYSES		
VOLUME PURGED (GALLONS)	1st 8,33			WELL SAMPLE TIME:
TIME (24 HOUR SYSTEM)	9:37 9.47			Remarks:
pH (SU)	3.64 3.97			Dry at 8.33 gal.
WATER TEMPERATURE (°C.)	14. 16.			,
SP. CONDUCTIVITY (UMHOS/CM)	410 420			
TURBIDITY (SUBJECTIVE)*	1 1			
ODOR (SUBJECTIVE)** * 1 = CLEAR 2 = SLIGHT 3 = MODERATE 4	<u>।</u> = भावम	LE NONE 2 E FAINT 3	= MODERATE 4 = STRONG	

1 = NONE 2 = FAINT 3 = MODERATE 4 = STRONG

Field Data Information Sheet For Groundwater Sampling

Page	of	

Shealy Environmental Services, Inc. 106 Vantage Point Drive Cayce, S.C. 29033

Date (MM-DD-YY)	March 1	6, 1999		Casing Dia	meter: 4 inches	Casing Material PVC - Metal
Field Personnel	MP	Q		Guard Pipe	: PVC Metal No	Locking Cap: Y N
Facility Name N	EVADA GOLI	OFIELDS, IN	C.	Protective	Abutment: Y - (N)	Integrity Satisfactory: Y - N
Well ID# GW- 2				Well Yield	Mod High	
Weather Conditions ()eac ()A		Air Temperatur	e	C. Remarks:		
Total Well Depth (TWD) = 28, 20	5					
Depth To Groundwater (DGW) = 21,6	1					
Length Of Water Column (LWC) =	9					
1 Casing Volume (OCV) = LWC x , 65 2-	= 4;3			gal.		
3 Casing Volumes =		gal. = Standard	l Evacuation Volu			
Total Volume of Water Removed =				gal.		
Method of Well Evacuation TB	SSB WW G					
Method of Sample Collection TB	SSB WW G	P Other				
TB - Teflon Bailer 1.5' SSB - Stainless Steel Bailer 2" WW - Well Wizard 3"	stants for Casing Diam = 0.092	1.02 1.47 2.00 2.61		•		
	N3619		IELD ANALYSE	<u>S</u>	, n t	WELL SAMPLE TIME:
VOLUME PURGED (GALLONS)	15/	15t	4, 30			
TIME (24 HOUR SYSTEM)		9'.20	9:24			Remarks:
pH (SU)	900	2.53	2.46			Dry at 4.3 gal.
WATER TEMPERATURE (°C.)		140	140			/
SP. CONDUCTIVITY (UMHOS/CM)		900	700			
TURBIDITY (SUBJECTIVE)*		١	<u>}</u>	··	ļ <u>l</u> .	
ODOR (SUBJECTIVE)** * 1 = CLEAR 2 = SLIGHT 3 = MODERATE 4	= HIGH	** 1=	NONE 2 = FAINT	3 = MODERATE	4 = STRONG	

<u>Field</u>	<u>Data</u>	<u>Information</u>	<u>Sneet</u>	<u>For</u>	<u>Groundw</u>	<u>ater</u>	<u>Samp</u>	ling
Page	(of						

Shealy Environmental Services, Inc. 106 Vantage Point Drive Cayce, S.C. 29033

Date (MM-DD-YY)	March 16, 1999	Casing Diameter: U inches	Casing Material: (VC)- Metal
Field Personnel	MPQ	Guard Pipe: PVC - Metaly- No	Locking Cap: Y- N
Facility Name	NEVADA GOLDFIELDS, INC.	Protective Abutment: Y -	Integrity Satisfactory: Y - N
Well ID# (2W-3		Well Yield: Low - Mod High	
Weather Conditions	Air Temperature 00	C. Remarks:	
Total Well Depth (TWD) =	22,60		
Depth To Groundwater (DGW) =	6.90		
Length Of Water Column (LWC) =	15.7		
1 Casing Volume (OCV) = LWC x	,652 = 10.24 ga	1.	
3 Casing Volumes =	フス gal. = Standard Evacuation Volum	e	
Total Volume of Water Removed =	ga	1.	
Method of Well Evacuation	TB SSB WW GP Other		
Method of Sample Collection	TB SSB WW GP Other		
Evacuation and Collection Methods	Constants for Casing Diameters		
TB - Teflon Bailer	1.5" = 0.092		
SSB - Stainless Steel Bailer	$2^{\circ} = 0.163$ $6^{\circ} = 1.47$		
WW - Well Wizard	3" = 0.367 7" = 2.00		
GP - Grunfos Pump	4" = 0.652 8" = 2.61		
	FIELD ANALYSES		

VOLUME PURGED (GALLONS)	15+	10.24				WELL SAMPLE TIME: 11:20
TIME (24 HOUR SYSTEM)	10:37	10:45				Remarks:
pH (SU)	6-14	641				Dry at 10.24 gal.
WATER TEMPERATURE (°C.)	/3°	/3°				
SP. CONDUCTIVITY (UMHOS/CM)	230	260				
TURBIDITY (SUBJECTIVE)*						
ODOR (SUBJECTIVE)** 1 = CLEAR 2 = SLIGHT 3 = MODERATE 4	= HIGH	** 1=	NONE 2 = FAINT	3 = MODERATE	4 = STRONG	
modelite		ı	HOUR F-IMIL	JANODLINIE	+ 5110110	

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Shealy Environmental Services, Inc. 106 Vantage Point Drive Cayce, S.C. 29033

Page of

Date (MM-DD-YY) March 16, 1999 Casing Diameter: ____ inches Casing Material: (PVC)- Metal Field Personnel MPQ Guard Pipe: PVC - Meta) - No Locking Cap: Y - N Facility Name NEVADA GOLDFIELDS, INC. Protective Abutment: Y -(N) Integrity Satisfactory: Y - N Well ID# Well Yield: Low - Mod. - High OC. **Weather Conditions** Air Temperature Remarks: Total Well Depth (TWD) = Depth To Groundwater (DGW) = 53.00 Length Of Water Column (LWC) = 1 Casing Volume (OCV) = LWC x gal. 3 Casing Volumes = gal. = Standard Evacuation Volume 4.38 Total Volume of Water Removed = 438 gal. Method of Well Evacuation (TB) SSB WW GP Other Method of Sample Collection (TB) SSB ww GP Other **Evacuation and Collection Methods** Constants for Casing Diameters TB - Teflon Bailer 1.5" = 0.0925" = 1.02SSB - Stainless Steel Bailer 2" = 0.163 $6^{\circ} = 1.47$ WW - Well Wizard 3" = 0.367 7" = 2.00 **GP** - Grunfos Pump $4^{\circ} = 0.652$ 8" = 2.61

FIFI D ANAI VSFS

VOLUME PURGED (GALLONS)	
TIME (24 HOUR SYSTEM)	13
pH (SU)	5.
WATER TEMPERATURE (°C.))
SP. CONDUCTIVITY (UMHOS/CM)	1)
TURBIDITY (SUBJECTIVE)*	
ODOR (SUBJECTIVE)**	
	= HIGH

		TELD ANAL I SE	<u> </u>	
1st	1.46	292	4,38	WELL SAMPLE TIME:
14:08	14:16	14:14	14;17	Remarks:
<i>5.5</i> 5	5.59	5.46	5.37	Dry at 4,38 gal.
790	190	190	190	
110	110	110	100	,
	1]	1	
	1	1	1	
T. T. C. C.				

1 = NONE 2 = FAINT 3 = MODERATE 4 = STRONG

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Shealy Environmental Services, Inc. 106 Vantage Point Drive Cayce, S.C. 29033

Date (MM-DD-YY)	March 16, 1999		Casing Diameter:inches	Casing Material: (PVC - Metal
Field Personnel	MPQ	<u> </u>	Guard Pipe: PVC - Metal - No	Locking Cap: Y - N
Facility Name	NEVADA GOLDFIELDS, INC.	_	Protective Abutment: Ø - N	Integrity Satisfactory: Y - N
Well ID# Well I	,		Well Yield: Low - Mod High	
	Mild Air Temperature	°C.	Remarks:	
Total Well Depth (TWD) =	,36			
Depth To Groundwater (DGW) = 5	2.00			
1 00000 0 1 (7 000)	36.3			
	63 = 5.92	gal.		
3 Casing Volumes = 17.76	gal. = Standard Ev	vacuation Volume		
Total Volume of Water Removed =	7.76	gal.		
Method of Well Evacuation	(B) SSB WW GP Other			
Method of Sample Collection	TB SSB WW GP Other			
Evacuation and Collection Methods	Constants for Casing Diameters			
TB - Teflon Bailer	$1.5^{\circ} = 0.092$ $5^{\circ} = 1.02$			
SSB - Stainless Steel Bailer	$2^{\circ} = 0.163$ $6^{\circ} = 1.47$			
WW - Well Wizard	3" = 0.367			
GP - Grunfos Pump	4" = 0.652 $8" = 2.61$			

VOLUME PURGED (GALLONS)

TIME (24 HOUR SYSTEM)

pH (SU)

WATER TEMPERATURE (°C.)

SP. CONDUCTIVITY (UMHOS/CM)

TURBIDITY (SUBJECTIVE)*

ODOR (SUBJECTIVE)**

	• •	,	
•	1 = CLEAR	2 = SLIGHT	3 = MODERATE

		EDD MARE TOD			
1st	5,92	11,84	17.76		well sample time: 15:00
14:39	14:41	14:44	14:48		Remarks:
5.26	5,20	5.22	5.20		
210	20°	190	20°		
80	90	90	90		
	1	1	1		
	1	1	/		
= HIGH	**] ==	NONE 2 = FAINT	3 = MODERATE	4 = STRONG	

ODOR (SUBJECTIVE)**

1 = CLEAR 2 = SLIGHT 3 = MODERATE 4 = HIGH

<u>Field</u>	Data	<u>Information</u>	Sheet For	Groundwa	<u>ter Samplin</u>	g
Page	0	f				

light	
Shealy Environmental Services, Inc	
106 Vantage Point Drive	
Cayce, S.C. 29033	

Date (MM-DD-YY)	March 16, 1999				ng Diameter: 2 inch	es Casing Material: (PV) - Metal
Field Personnel	ME	' Q	··	Guar	d Pipe: PVC Metal -	No Locking Cap: Y- N
Facility Name N	EVADA GOLI	DFIELDS, INC	7.	Prote	ctive Abutment: (Y) -	N Integrity Satisfactory: Y - N
Well ID# Well J				11	Yield: Low - Mod H	ligh
Weather Conditions Clear Coo		Air Temperature	0	C. Rema	arks:	
Total Well Depth (TWD) = $(25, 9)$	0					
Depth To Groundwater (DGW) = 59.						
Length Of Water Column (LWC) =	35					
1 Casing Volume (OCV) = LWC x		,	g	al.		
3 Casing Volumes =		gal. = Standard	Evacuation Volume	ne		
	1941		g	al.		
Method of Well Evacuation		P Other				
Method of Sample Collection	SSB WW G	P Other				
TB - Teflon Bailer 1.5 SSB - Stainless Steel Bailer 2" WW - Well Wizard 3"	= 0.163 6" = = 0.367 7" =	neters 11.02 11.47 22.00 22.61		· · · · · · · · · · · · · · · · · · ·		
		F	IELD ANALYSE	S		
VOLUME PURGED (GALLONS)	15+	,71	1.42	, .		WELL SAMPLE TIME: 14:00
TIME (24 HOUR SYSTEM)	1:40	1.45	1,48		<u> </u>	Remarks:
pH (SU)	5 .9 5	5 9 5	5.64			Dry at 2.0 gal
WATER TEMPERATURE (°C.)	2j ⁰	21°	20			
SP. CONDUCTIVITY (UMHOS/CM)	50	.50	60			
TURBIDITY (SUBJECTIVE)*	/	1	1			

1 = NONE 2 = FAINT 3 = MODERATE 4 = STRONG

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ental Services, Inc. nt Drive Cayce, S.C. 29033

Page ____ of ____

Date (MM-DD-YY)	March 16, 1999		Casing Diameter: 3 inches	Casing Material: PVO - Metal
Field Personnel	MPQ		Guard Pipe: PVC - Metal - No	Locking Cap: (Y) - N
Facility Name	NEVADA GOLDFIELDS, INC.		Protective Abutment: 🖉 - N	Integrity Satisfactory: Y - N
Well ID # ال ال			Well Yield: Low - Mod High	
Weather Conditions Clear, Los	Air Temperature	°C.	Remarks:	
Total Well Depth (TWD) = 81,53	}			
Depth To Groundwater (DGW) = (), L				
	20.08			
1 Casing Volume (OCV) = LWC x		gal.		
3 Casing Volumes =	gal. = Standard Evacuation V	olume		
Total Volume of Water Removed =	6.54	gal.		
Method of Well Evacuation	TB SSB WW GP Other			
Method of Sample Collection	TB SSB WW GP Other			
Evacuation and Collection Methods TB - Teffon Bailer	Constants for Casing Diameters 1.5" = 0.092			
SSB - Stainless Steel Bailer	1.5° = 0.092 5° = 1.02 2° = 0.163 6° = 1.47			
WW - Well Wizard	$3^{"} = 0.367$ $7^{"} = 2.00$			
GP - Grunfos Pump	4" = 0.652 8" = 2.61			

TIME (24 HOUR SYSTEM)

pH (SU)

WATER TEMPERATURE (°C.)

SP. CONDUCTIVITY (UMHOS/CM)

TURBIDITY (SUBJECTIVE)*

ODOR (SUBJECTIVE)**

		• • • •		
•	I = CLEAK	2 = SLIGH1	3 = MODERATE	4 =

FIELD	ANALYSES

	F	IELD ANALYSE	S		
15+	3, 27	6.54			WELL SAMPLE TIME:
12:57	1:05	1,15			Remarks:
6.61	6.67	6.72			Dry at 6,54 gal.
20°	20°	20°			
90	90	90			
/	2	2			
/	1	/		_	
4 = HIGH	**] ==	NONE 2 = FAINT	3 = MODERATE	4 = STRONG	

Page ____ of ____

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10	6	1
Ca	ıy	C

201121 aly Environmental Services, Inc. Vantage Point Drive

ce, S.C. 29033

Date (MM-DD-YY)	March	16, 1999		Casing Diameter: 2 inches	Casing Material: VO- Metal
Field Personnel	M	PQ		Guard Pipe: PVC - (Meta) - No	Locking Cap: ① - N
Facility Name	NEVADA GOL	DFIELDS, INC.		Protective Abutment: Y - N	Integrity Satisfactory: Y - N
Well ID# Well P				Well Yield: Low - Mod High	
Weather Conditions Clear	Cool	Air Temperature	°C.	Remarks:	
	9.18				
Depth To Groundwater (DGW) =	75.42				
Length Of Water Column (LWC) =	13.76				
1 Casing Volume (OCV) = LWC x	163 = 2.2	4	gal.		
3 Casing Volumes =	12	gal. = Standard Evacuat	tion Volume		
Total Volume of Water Removed =	6.72		gal.		
Method of Well Evacuation	TB SSB WW	GP Other			
Method of Sample Collection	TB SSB WW	GP Other			
Evacuation and Collection Methods	Constants for Casing Dia				
TB - Teflon Bailer SSB - Stainless Steel Bailer		= 1.02 = 1.47			
WW - Well Wizard		= 1.47 = 2.00			
GP - Grunfos Pump	÷	= 2.61			

FIELD ANALYSES

			LLDD MINNE I OF	,	
VOLUME PURGED (GALLONS)	15+	2.24	4, 48	6.72	WELL SAMPLE TIME:
TIME (24 HOUR SYSTEM)	11:47	11:52	11:58	12:03	Remarks:
pH (SU)	6-29	6,45	6,52	6.61	
WATER TEMPERATURE (°C.)	190	190	180	180	
SP. CONDUCTIVITY (UMHOS/CM)	120	120	120	120	
TURBIDITY (SUBJECTIVE)*			1	1	
ODOR (SUBJECTIVE)**	1	j	1	1	
 1 = CLEAR 2 = SLIGHT 3 = MODERATE 	4 = HIGH	** 1=	NONE 2 = FAINT	3 = MODERATE	A = STRONG

1 = CLEAR 2 = SLIGHT 3 = MODERATE 4 = HIGH

^{1 =} NONE 2 = FAINT 3 = MODERATE 4 = STRONG

ANALYTICAL METHODOLOGY

NEVADA GOLDFIELDS McCormick, SC

	EPA
<u>PARAMETER</u>	METHOD
TDS	160.1
Nitrate + Nitrite-N	353.2
Alkalinity-Bicarbonate	SM4500D
Ammonia-N	350.3
Chloride	300.0
Sulfate	375.4
TOC	415.1
Cyanide	335.2
Metals: Mercury	7470A
Total Metals (All others)	6010B

GW Wells Monitoring Report First Quarter 1999

NEVADA GOLDFIELDS McCormick, SC

SIGNATURE PAGE

This report, "Groundwater Sampling and Analytical Procedures Report for First Quarter, 1999," has been prepared in accordance with accepted quality control practices at the request of and for the exclusive use of NEVADA GOLDFIELDS. The report has been reviewed by the undersigned reviewers.

SHEALY ENVIRONMENTAL SERVICES, INC.

Michael A. Woodrum, Vice President of Analytical Services

March 31, 1999

Andy Norris, Quality Assurance/Quality Control Officer

March 31, 1999

TABLE OF CONTENTS

Y	TN	JTR		T T	\sim T	\mathbf{C}	N.
1.	H	ИIК	w	U		H J	N

I.A. MONITORING PARAMETERS AND FREQU	JENC'	UEN
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I.B. SAMPLING PROTOCOL

- I.B.1. Water Level Measurement
- I.B.2. Total Depth Measurement
- I.B.3. Well Evacuation
- I.B.4. Sample Collection

I.C. FIELD QUALITY CONTROL

- I.C.I. Field Cleaning Procedures
- I.C.2. Field Instruments and Measuring Devices
- I.C.3. Field Blanks
- I.C.4. Field Data Information Sheet
- I.C.5. Sample Transportation and Chain of Custody

II. ANALYTICAL PROTOCOL

II.A. ATTACHMENTS

- Attachment I Analytical Results
- Attachment II Depth to Groundwater Summary
- Attachment III Chain of Custody Forms
- Attachment IV Field Data Information Sheets
- Attachment V Analytical Methodology

GROUNDWATER SAMPLING AND ANALYTICAL PROCEDURES REPORT

First Quarter 1999

NEVADA GOLDFIELDS, INC. McCormick, SC

I. INTRODUCTION

This report describes the procedures followed by SHEALY ENVIRONMENTAL SERVICES, INC. (SHEALY) during the sampling and analysis of groundwater at NEVADA GOLDFIELDS, McCormick, SC. The report includes procedures for:

- 1. Sample collection
- Sample preservation 2.
- Chain-of-Custody control 3.
- Analytical protocol 4.

These procedures were developed by SHEALY to comply with the sampling procedures recommended by SCDHEC, the US Environmental Protection Agency (EPA), the Resource Conservation and Recovery Act (RCRA), Groundwater Monitoring Technical Enforcement Guidance Document (TEGD) (1986), and published research findings. The protocol described was designed to insure that the integrity of the samples were maintained in the field, during transit to the laboratory and throughout the analytical procedures.

MONITORING PARAMETERS AND FREQUENCY

The following wells were sampled during March, 1999:

GW-3 Well K GW-1 GW-2

Well P Well H Well I

These monitoring wells were analyzed for the following parameters:

* Nitrate + Nitrite-N *Chloride *TDS *Sulfate

* Alkalinity Bicarbonate * Cyanide *TOC *Ammonia

*Metals: As, Hg, Se, Pb, Al, Ba, Cd, Ca, Cr, Cu, Fe, Mg, Mn, Ni, K, Ag, Na, Zn Dissolved Cu

Well J

I.B. SAMPLING PROTOCOL

The procedures described below are intended to insure that representative groundwater samples are collected. Procedures for measurement of the water table depth, measurement of total well depth, well evacuation, and sample collection are included.

For each well, all data collected were recorded on a Field Data Information Sheet. Prior to the initiation of activities at each well, all sampling personnel put on new, laboratory quality PVC gloves. These gloves were replaced as necessary during the well evacuation and sampling procedure. Prior to the collection of any groundwater quality data at each well, the surface integrity of the well was checked. Any problems which could affect groundwater sample integrity were noted on the Field Data Information Sheet.

I.B.1. Water Level Measurement

Prior to the evacuation of each monitoring well, the depth to the water table was determined with the use of an electronic water level indicator. The water level indicator uses a sensitive circuitry to activate a buzzer when electrical continuity is made at the probe. The sensitivity is set so that waters with conductivities greater than approximately one umhos/cm will close the circuit. After use at each well, the instrument was cleaned according to the "Field Cleaning Procedures," which are described in Section I.C.1. The depth to the water table was measured by turning the instrument on and then slowly lowering the instrument probe into the well until the buzzer sounded. The distance from the measuring point of the well to the water level was then measured and recorded. The instrument was calibrated in 0.05 foot increments. All measurements were made and estimated to the nearest 0.01 foot.

I.B.2. Total Depth Measurement

The total depth measurement is used in calculating the volume of water standing in the well casing. The total well depth was taken from historical data.

I.B.3. Well Evacuation

The purpose of the well evacuation procedure is to initiate the introduction of water from the surrounding aquifer into which the well is placed. By removing standing water from the well, a hydraulic gradient is created which results in water from the surrounding aquifer into the well. The quality of this water is representative of the water quality immediately surrounding the well.

Well evacuation and sampling of all wells at the site were done using 1.66 inch outside diameter, three foot long Teflon or stainless steel bailers with a single bottom check valve. All bailers were cleaned at the laboratory prior to use, and a separate bailer was used for each well. When field cleaning was required, the method outlined in Section I.C.1. was used and new 1/8 inch nylon twine was used for each well.

The following steps were followed for evacuation with Teflon bailers:

- 1. The depth to the water table was subtracted from the total well depth to determine the length of the water column. The water column length was multiplied by the appropriate conversion factor for that particular well casing diameter to determine the volume, in gallons, of water standing in the well casing. This volume was then multiplied by three to calculate the standard evacuation volume.
- 2. The bailer was lowered to a depth just below the water level in the well each time to insure adequate evacuation of the standing water.
- 3. The pH and Specific Conductivity were measured and recorded periodically during well evacuation. For high yield wells, well evacuation continued until the standard evacuation volume was removed and both pH and Specific Conductivity were relatively stable. Stability of the pH is defined as two consecutive measurements varying by no more than 10 percent. All evacuated volumes and field measurements were recorded on the Field Data Information Sheet.

Wells which were evacuated to dryness prior to reaching the standard evacuation volume were sampled as soon as a sufficient volume of water had entered the well. Field parameters were measured prior to sample collection to insure water quality stability.

I.B.4. Sample Collection

The primary consideration during the collection of groundwater samples is to insure that the sample is not altered or contaminated during withdrawal from the well and introduction into the sample container.

A complete set of pre-cleaned and pre-labeled sample containers were removed from the cooler and slowly filled with fresh sample, poured directly from the bailer. Preservatives were added to the sample bottles prior to leaving for the sampling event. Care was taken to insure that the bailer did not contact the sample bottle during filling. The filled bottles were then capped and securely placed into the pre-cleaned cooler. The Chain of Custody Form, was then completed for that well. Finally, the well was re-capped and locked.

I.C. FIELD QUALITY CONTROL

A strict quality control program is followed in the field by SHEALY to insure that sample integrity is maintained during sample collection and transit to the laboratory. In addition, all equipment and instruments are carefully maintained and calibrated in accordance with schedules and procedures described in SHEALY's Quality Control Manual entitled "SOP and QA Manual for Groundwater Sampling".

I.C.1. Field Cleaning Procedures

All field equipment and instrumentation are cleaned at the laboratory according to standard laboratory procedures upon return from each sampling trip. Field equipment and instrumentation include: sample coolers, pH and Specific Conductivity meters, and field measurement vessels. If instrumentation and field equipment were used on more than one well, it was cleaned according to the following field cleaning procedures:

- 1. Rinse item thoroughly with a 5% phosphate-free laboratory detergent solution.
- 2. Rinse item with deionized water, twice.

I.C.2. Field Instruments and Measuring Devices

Instruments and devices used to collect field data at the NEVADA GOLDFIELDS facility include: pH and Specific Conductivity meters and an electronic water level indicator.

The pH and Specific Conductivity meters were calibrated in the field prior to sampling. The pH meter was calibrated using a 4 SU standard and a 10 SU standard. The Specific Conductivity meter was also calibrated in the field according to SHEALY's Field Operation SOP and the manufacturer's specifications. All calibration records for both meters are recorded in the appropriate calibration log books maintained at Shealy.

I.C.3. Field Blanks

One set of field blanks was collected during the sampling event. At that time, one set of bottles was randomly removed from the sample cooler and labeled as "Field Blank". The Field Blank was obtained by filling a laboratory cleaned bailer with deionized water. this water was then poured into the labeled sample bottles. The deionized water is also used to rinse field equipment. Once filled, the field blanks were treated as samples and placed in the sample cooler for transport to the laboratory. Field blanks and groundwater samples were analyzed for the same parameters in order to assure quality control during sampling, transportation, and analysis.

I.C.4. Field Data Information Sheet

All pertinent field information was recorded on the Field Data Information Sheet as it was collected. This information includes: date of sampling, name of collector, monitoring well number, casing diameter and material of construction, well integrity, measuring point elevation, total well depth, depth to groundwater, volume of water in casing, method of evacuation and sampling, total volume of water evacuated, field measurements with time and volume evacuated, and field observations. Information on the Field Data Information Sheets was reviewed upon arrival at the laboratory and pertinent information transferred to the Certificate of analysis and noted as field measurements.

I.C.5. Sample Transportation and Chain of Custody

The transportation of groundwater samples from the time of collection to their arrival at the laboratory is an important part of the groundwater monitoring program. The mode of travel must be such that the sample is not altered physically, chemically, or biologically. The travel time to the laboratory must not interfere with the sample holding time. The Chain of Custody must also be maintained during the transportation process. Samples collected at the NEVADA GOLDFIELDS facility remained in the possession of SHEALY personnel and were transported to the laboratory within the allowed holding time of all the required parameters. Custody is defined as:

- 1. Being in one's physical possession.
- 2. Being in one's view, after being in one's possession.
- 3. Being in a designated secure area.

Upon arrival at the laboratory, the sampling personnel relinquished the samples to the laboratory sample custodian. This transaction was documented on the Chain of Custody Form.

Reviewed By	:	
•	Milton P. Quattlebaum	Date
	Field Service Supervisor	

II. ANALYTICAL PROTOCOL

The analytical protocols used at SHEALY to insure that groundwater quality at the NEVADA GOLDFIELDS facility was accurately detected and quantified were taken two EPA sources, Methods for Chemical Analyses of Water and Wastes and Test Methods for Evaluation Solid Waste. The analysis for metals was for the total recoverable fraction. Laboratory Quality Control/Quality Assurance procedures are presented in detail in the SHEALY's SOP Manuals.

Scientists and Consultants

106 VANTAGE POINT DRIVE CAYCE, SOUTH CAROLINA 29033

CERTIFICATE OF ANALYSIS

(803) 791-9700 FAX (803) 791-9111 www.shealyenvironmental.com

SC DHEC No. 32010

NC DEHNR No. 329

Client:

NEVADA GOLDFIELDS PO Box 1530 McCormick, SC 29

29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161192

Description: GW-1

Coll. Date: 03/16/99

Coll. Time:

Date Received: 03/17/99 Date Reported: 03/28/99

QA/QC Officer May

V.P. Analytical M

Parameters	Method	Result	Units	Date	Date Analyzed	ann I
	Mechod		UHICE	Freheren	Mualyzeu	And I
Well Depth		36.95	ft.		03/16/99	MPQ
Water Level Depth From Top of Casing		24.18	ft.		03/16/99	MPQ
pH-Field at 16.0 C	150.1	3.97	នប		03/16/99	MPQ
Specific Conductance at 25 C - Field		348			03/16/99	
Temperature-Field INORGANICS	170.1	16.0	С		03/16/99	MPQ
Alkalinity Bicarbonate	SM4500D	<10.0	mg/l		03/24/99 1343	NWD
Ammonia-N	350.3	2.94	mg/l		03/18/99 0930	EMD
Chloride	300.0	6.76	mg/l		03/19/99	JPS
			3		1130	
Cyanide-Total	335.2	<0.010	mg/l	03/24/99		JPS
-2				0800	1300	
Nitrate + Nitrite	353.2	0.639	mg/l		03/18/99	NWD
			3. –		1110	•
Sulfate	375.4	304	mg/l		03/23/99	JPS
			•		1100	
TOC	415.1	2.6	mg/l		03/19/99	JPS
			•		1949	
TDS	160.1	320	mg/l		03/19/99	MCM
			•		1600	
METALS						
	50100	F 41	/1	02/10/00	02/04/00	7.m.c
Aluminum	6010B	5.41	mg/1	03/18/99		FTS
Arsenic	6010D	-0 005	/1	0830	1107	TATA 0
Arsenic	6010B	<0.005	mg/I	03/18/99 0830	•	FTS
Barium	6010B	0.049	/1	03/18/99	1107	THE CONTRACT OF THE CONTRACT O
parrum	60108	0.043	mg/1	03/18/99	1107	FIS
Cadmium	6010B	0.071	ma/1	03/18/99		7TC
Camitam	90100	0.071	mg/I	03/18/33	1107	F 18
Calcium	6010B	15.5	mc/1	03/18/99		PTG
-62.0.1 cm	00102	13.3	 9/1	0830	1107	215
Chromium	6010B	<0.005	ma/1	03/18/99		PTS
4112 0412 0411	70202	40.005		0830	1107	***
Copper	6010B	2.14	mcr/1	03/18/99		rts.
40000	00102		3/-	0830	1107	
Iron	6010B	6.77	ma/1	03/18/99		VTS
	******	••••	-5, -	0830	1107	
Lead	6010B	<0.003	mg/1	03/18/99		FTS
			<i>31</i> -	0830	1107	-
Magnesium	6010B	7.39	ma/1	03/18/99		FTS
•	. – . –		5 , -	0830	1107	-
Manganese	6010B	1.81	mg/l	03/18/99		FTS
-	_			0830	1107	
Nickel	6010B	0.047	mg/1	03/18/99		FTS
				0020	1100	

0830

1107

Page 2 (Continuation of 161192)

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.
Potassium	6010B	0.824		03/18/99 0830	1107	
Selenium	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1107	fts
Silver	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1107	FTS
Sodium	6010B	43.1	mg/l	03/18/99 0830	03/24/99 1517	FTS
Zinc	6010B	2.08	mg/l	03/18/99 0830	03/24/99 1107	FTS
Mercury	7470A	0.004	mg/l	03/19/99 0830	03/22/99 1300	DPS
Dissolved Copper	6010B	1.96	mg/l	03/18/99 0830	03/24/99 1102	FTS

Scientists and Consultants

106 VANTAGE POINT DRIVE CAYCE, SOUTH CAROLINA 29033

CERTIFICATE OF ANALYSIS

(803) 791-9700 FAX (803) 791-9111 www.shealyenvironmental.com

SC DHEC No. 32010

NC DEHNR No. 329

Client:

NEVADA GOLDFIELDS PO Box 1530

McCormick, SC 29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161193

Description: GW-2

Coll. Date: 03/16/99 Coll. Time:

Date Received: 03/17/99

QA/QC Officer ______

Date Reported: 03/31/99

V.P. Analytical M

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.
					<u>-</u>	
Well Depth		28.20	ft.		03/16/99	-
Water Level Depth From Top of Casing		21.61	ft.		03/16/99	_
pH-Field at 14.0 C	150.1	2.46	្ននប		03/16/99	
Specific Conductance at 25 C - Field		553			03/16/99	
Temperature-Field INORGANICS	170.1	14.0	С		03/16/99	_
Alkalinity Bicarbonate	SM4500D	67.2	mg/l		03/24/99 1343	NWD
Ammonia-N	350.3	1.50	mg/l		03/18/99 0930	EMD
Chloride	300.0	3.49	mg/l		03/19/99	JPS
Cyanide-Total	335.2	<0.010	ma/1	03/29/99		.TPS
Cyanide-local	333.2	<0.010	mg/ I	1300	1300	
Nitrate + Nitrite	353.2	0.04	mg/l		03/18/99	NWD
					1110	
Sulfate	375.4	546	mg/1		03/23/99	JPS
					1100	
TOC	415.1	1.2	mg/l		03/19/99	JPS
			/3		2008	14014
TDS	160.1	396	mg/l		03/19/99	MCM
					1600	
METALS						
Aluminum	6010B	13.4	ma/1	03/18/99	03/24/00	PTQ
AI UMI II UM	90109	13.4	mg/ r	0830	1117	715
Arsenic	6010B	<0.005	ma/1	03/18/99		FTS
W BOILT	00100	70.005		0830	1117	
Barium	6010B	0.021	mg/1	03/18/99		FTS
24114m	00202	*****	9, -	0830	1117	
Cadmium	6010B	0.034	mg/l	03/18/99		FTS
			-3, -	0830	1117	
Calcium	6010B	10.8	mg/1	03/18/99	03/24/99	FTS
				0830	1117	
Chromium	6010B	0.020	mg/l	03/18/99	03/24/99	FTS
				0830	1117	
Copper	6010B	1.84	mg/1	03/18/99	03/24/99	FTS
				0830	1117	
Iron	6010B	38.8	mg/l	03/18/99		FTS
				0830	1117	
Lead	6010B	<0.003	mg/l	03/18/99		FTS
			•-	0830	1117	
Magnesium	6010B	7.66	mg/l	03/18/99		FTS
••				0830	1117	
Manganese	6010B	0.567	mg/l	03/18/99		FTS
WI _1_ 7	C010D	0 000		0830	1117	tame:
Nickel	6010B	0.082	mg/1	03/18/99 0830	1117	FTD
				0830	1117	

Page 2 (Continuation of 161193)

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.
Potassium	6010B	1,12	mg/l	03/18/99 0830	03/24/99 1117	FTS
Selenium	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1117	FTS
Silver	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1117	FTS
Sodium	6010B	8.11	_	03/18/99 0830	1519	
Zinc	6010B	1.88		03/18/99 0830	1117	
Mercury Dissolved Copper	7470A	0.003	_	03/19/99 0830	1300	•
presotaed cobber	6010B	1.78	mg/l	03/18/99 0830	03/24/99 1112	FTS

Scientists and Consultants

106 VANTAGE POINT DRIVE CAYCE, SOUTH CAROLINA 29033

CERTIFICATE OF ANALYSIS

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SC DHEC No. 32010

NC DEHNR No. 329

Client:

NEVADA GOLDFIELDS PO Box 1530 McCormick, SC 29

29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161194

Coll. Date: 03/16/99

Coll. Time:

Description: GW-3

Date Received: 03/17/99 Date Reported: 03/31/99 QA/QC Officer Man

V.P. Analytical M

				Date	Date	
Parameters	Method	Result	Units	Prepared		Anal.
Well Depth		22.60	ft.		03/16/99	MPQ
Water Level Depth From Top of Casing		6.90	ft.		03/16/99	MPQ
pH-Field at 13.0 C	150.1	6.41	នប		03/16/99	MPQ
Specific Conductance at 25 C - Field	120.1	200	umhos/cm		03/16/99	MPQ
Temperature-Field INORGANICS	170.1	13.0	C		03/16/99	MPQ
Alkalinity Bicarbonate	SM4500D	70.2	mg/l		03/24/99 1343	NWD
Ammonia-N	350.3	1.97	mg/l		03/18/99 0930	EMD
Chloride	300.0	9.23	mg/l		03/19/99 1130	JPS
Cyanide-Total	335.2	0.169	mg/l	03/29/99 0830	03/30/99 1300	JPS
Nitrate + Nitrite	353.2	0.586	mg/l		03/18/99 1110	
Sulfate	300.0	163	mg/l		03/19/99 1130	
TOC	415.1	2.7	mg/l		03/19/99	
TDS	160.1	384	mg/1 _		03/19/99 1600	WGN
METALS						
Aluminum	6010B	2.09	mg/l	03/24/99 0830	03/25/99 1229	FTS
Arsenic	6010B	<0.005	mg/l	03/24/99 0830		FTS
Barium	6010B	0.035	-	03/24/99 0830	1229	
Cadmium	6010B	<0.002		03/24/99 0830	1229	
Calcium	6010B	31.1		03/24/99 0830	1229	
Chromium	6010B	<0.005	-	03/24/99 0830	1229	
Copper	6010B	0.074	•	03/24/99	0041	
Iron	6010B	2.60	•	03/24/99 0830	1229	
Lead	6010B	<0.003	•	03/24/99 0830	1229	
Magnesium	6010B	18.2	-	03/24/99	1229	
Manganese	6010B	0.892	-	03/24/99	1229	
Nickel	6010B	<0.010	mg/l	03/24/99 0830	03/25/99 1229	FTS

Page 2 (Continuation of 161194)

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.
Potassium	6010B	0.384	mg/l	03/24/99 0830	03/25/99 1229	FTS
Selenium	6010B	0.029	mg/l	03/24/99 0830	03/25/99 1229	FTS
Silver	6010B	<0.005	mg/l	03/24/99 0830	03/25/99 1229	FTS
Sodium	6010B	18.7	mg/l	03/24/99 0830	03/25/99 1522	FTS
Zinc	6010B	0.039	mg/l	03/24/99 0830	03/25/99 1229	FTS
Mercury	7470A	<0.0002	mg/l	03/19/99 0830	03/22/99 1300	DPS
Dissolved Copper	6010B	0.046	mg/l	03/24/99 0830	03/25/99 0036	FTS

Scientists and Consultants

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SC DHEC No. 32010

NC DEHNR No. 329

Client:

NEVADA GOLDFIELDS PO Box 1530 McCormick, SC 29

29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161198 Description: Well H

Coll. Date: 03/16/99

Coll. Time:

QA/QC Officer _ ~

Date Received: 03/17/99 Date Reported: 03/31/99

V.P. Analytical

				Date	Date	
Parameters	Method	Result	Units	Prepared	Analyzed	Anal.
Well Depth		53.00	ft.		03/16/99	MPQ
Water Level Depth From Top of Casing		8.98	ft.		03/16/99	MPQ
pH-Field at 19.0 C	150.1	5.37	នប		03/16/99	MPO
Specific Conductance at 25 C - Field	120.1	88.54	umhos/cm		03/16/99	MPO
Temperature-Field INORGANICS	170.1	19.0	C		03/16/99	
Alkalinity Bicarbonate	8M4500D	<10.0	mg/l		03/24/99 1343	NWD
Ammonia-N	350.3	0.874	mg/l		03/18/99 0930	EMD
Chloride	300.0	7.28	mg/l		03/19/99 1130	JPS
Cyanide-Total	335.2	<0.010	mg/l	03/29/99 1300		JPS
Nitrate + Nitrite	353.2	2.56	mg/l		03/18/99	NWD '
Sulfate	300.0	29.2	mg/1		03/19/99	JPS
TOC	415.1	1.2	mg/l		03/19/99	JPS
TDS	160.1	16	mg/l		03/19/99 1600	WCW
METALS						
Aluminum	6010B	<0.050	mg/l	03/18/99 0830	03/24/99 1330	FTS
Arsenic	6010B	<0.005	mg/l	03/18/99 0830		FTS
Barium	6010B	0.017	mg/l	03/18/99 0830	03/24/99 1330	FTS
Cadmium	6010B	<0.002	mg/l	03/18/99 0830	03/24/99 1330	FTS
Calcium	6010B	1.13	mg/l	03/18/99 0830	03/24/99 1330	FTS
Chromium	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1330	FTS
Copper	6010B	0.032	mg/l	03/18/99 0830	03/24/99 1330	FTS
Iron	6010B	0.078	mg/l	03/18/99 0830	03/24/99	FTS
Lead	6010B	<0.003	mg/l	03/18/99 0830	03/24/99 1330	FTS
Magnesium	6010B	0.605	mg/l	03/18/99 0830	03/24/99 1330	FTS
Manganese	6010B	0.065	mg/l	03/18/99 0830		PTS
Nickel	6010B	<0.010	mg/l	03/18/99 0830	03/24/99 1330	FTS

Page 2 (Continuation of 161198)

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.
Potassium	6010B	<0.200	mg/l	03/18/99 0830	03/24/99 1330	FTS
Selenium	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1330	FTS
Silver	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1330	FTS
Sodium	6010B	20.3	mg/l	03/18/99 0830	03/24/99 1531	FTS
Zinc	6010B	20.3	mg/l	03/18/99 0830	03/24/99 1330	fts
Mercury	7470A	<0.0002	mg/l	03/26/99 0830	03/29/99 0700	FTC
Dissolved Copper	6010B	0.019	mg/l	03/18/99 0830	03/24/99 1325	fts

Scientists and Consultants

106 VANTAGE POINT DRIVE CAYCE, SOUTH CAROLINA 29033

CERTIFICATE OF ANALYSIS

(803) 791-9700 FAX (803) 791-9111 www.shealyenvironmental.com

SC DHEC No. 32010

NC DEHNR No. 329

Coll. Date: 03/16/99

Client:

NEVADA GOLDFIELDS PO Box 1530 McCormick, SC 29

29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161199 Description: Well I

Coll. Time:

QA/QC Officer _ ~~~

Date Received: 03/17/99 Date Reported: 03/31/99

V.P. Analytical

				Date	Date	
Parameters	Method	Result	Units	Prepared	Analyzed	Anal.
Well Depth		88.30	ft.		03/16/99	MPO
Water Level Depth From Top of Casing		52.00	ft.		03/16/99	-
pH-Field at 20.0 C	150.1	5.20	នប		03/16/99	=
Specific Conductance at 25 C - Field	120.1	81.4	umhos/cm		03/16/99	MPQ
Temperature-Field INORGANICS	170.1	20.0	c		03/16/99	MPQ
Alkalinity Bicarbonate	SM4500D	<10.0	mg/l		03/24/99 1343	NWD
Ammonia-N	350.3	0.396	mg/l		03/18/99 0930	EMD
Chloride	300.0	10.7	mg/l		03/19/99 1130	JPS
Cyanide-Total	335.2	0.021	mg/l	03/29/99 1300		JPS
Nitrate + Nitrite	353.2	1.23	mg/l		03/18/99	NWD
Sulfate	300.0	17.5	mg/l		03/19/99	JPS
TOC	415.1	2.5	mg/l		03/19/99	JPS
TDS	160.1	<10	mg/l		03/19/99 1600	MCM
METALS						
Aluminum	6010B	0.220	mg/1	03/18/99		FTS
			•-	0830	1340	
Arsenic	6010B	<0.005	mg/l	03/18/99	• •	FTS
				0830	1340	
Barium	6010B	0.030	mg/1	03/18/99		FTS
Cadmium	6010B	<0.002	mm/1	0830 03/18/99	1340	ram d
Cadmium	POTOR	<0.002	mg/I	03/18/33	1340	FTS
Calcium	6010B	1.81	ma/1	03/18/99		BAC
Calcium	00102	1.01	mg/ I	0830	1340	£15
Chromium	6010B	<0.005	ma/1	03/18/99		PTS
	00102	40.000		0830	1340	***
Copper	6010B	0.010	mg/l	03/18/99		FTS
				0830	1340	
Iron	6010B	0.338	mg/l	03/18/99 0830	03/24/99 1340	FTS
Lead	6010B	<0.003	ma/1	03/18/99		PTC
nega	00102	(0.003	ш9/ 1	0830	1340	£ 15
Magnesium	6010B	2.17	ma/1	03/18/99		FTS
wednestm	00202	2.2.		0830	1340	110
Manganese	6010B	0.050	mg/l	03/18/99		FTS
			3, -	0830	1340	
Nickel	6010B	<0.010	mg/l	03/18/99		FTS
			J ,	0830	1340	

Page 2 (Continuation of 161199)

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.
Potassium	6010B	0.290	mg/l	03/18/99 0830	03/24/99	FTS
Selenium	6010B	<0.005	mg/l	03/18/99 0830		FTS
Silver	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1340	FTS
Sodium	6010B	8.84	mg/l	03/18/99 0830	03/24/99 1540	FTS
Zinc	6010B	0.027	•	03/18/99 0830	1340	
Mercury	7470A	0.0003	•	03/26/99 0830	0700	
Dissolved Copper	6010B	0.006	mg/l	03/18/99 0830	03/24/99 1335	FTS

Scientists and Consultants

106 VANTAGE POINT DRIVE CAYCE, SOUTH CAROLINA 29033

CERTIFICATE OF ANALYSIS

(803) 791-9700 FAX (803) 791-9111 www.shealyenvironmental.com

SC DHEC No. 32010

NC DEHNR No. 329

Coll. Date: 03/16/99

Client:

NEVADA GOLDFIELDS PO Box 1530 McCormick, SC 29

29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161197

Description: Well J

Coll. Time:

Date Received: 03/17/99 Date Reported: 03/31/99 QA/QC Officer A

V.P. Analytical Mf

Parameters	Method	Result	Unita	Date Prepared	Date	anal
Falameters	Mechod	- Kepair	UNICE	Frepared	Midlyzeu	MIGI.
Well Depth		63.90	ft.		03/16/99	
Water Level Depth From Top of Casing		59.55	ft.		03/16/99	-
pH-Field at 20.0 C	150.1	5.64	ST		03/16/99	**
Specific Conductance at 25 C - Field		54.3	•		03/16/99	
Temperature-Field INORGANICS	170.1	20.0	С		03/16/99	WPQ
Alkalinity Bicarbonate	SM4500D	<10.0	mg/l		03/24/99 1343	NWD
Ammonia-N	350.3	1.05	mg/l		03/18/99 0930	EMD
Chloride	300.0	4.97	mg/l		03/19/99	JPS
Chanada Maka 1	335 9	-0.010	/1	03/29/99	1130	TDG
Cyanide-Total	335.2	<0.010	mg/ r	1300	1300	UES
Nitrate + Nitrite	353.2	0.416	mg/l		03/18/99 1110	NWD
Sulfate	300.0	16.9	mg/l		03/19/99	JPS
			٥.		1130	
TOC	415.1	<1.0	mg/l		03/19/99	JPS
					2240	
TDS	160.1	<10	mg/l		03/19/99	MCM
					1600	
METALS					4 4	
Aluminum	6010B	0.180	mg/l	03/18/99		FTS
				0830	1254	
Arsenic	6010B	<0.005	mg/I	03/18/99		FTS
	C010D	0 000	/1	0830	1254	wma
Barium	6010B	0.009	mg/ I	03/18/99 0830	1254	F15
Cadmium	6010B	<0.002	ma/1	03/18/99		THE STATE OF THE S
Cadmitum	BOTOB	₹0.002	mg/ I	0830	1254	F 15
Calcium	6010B	1.58	ma/1	03/18/99		FTS
	00202	2.50	3/-	0830	1254	
Chromium	6010B	<0.005	mg/l	03/18/99		FTS
	***************************************		_3, _	0830	1254	
Copper	6010B	0.013	mg/1	03/18/99	03/24/99	FTS
				0830	1254	
Iron	6010B	1.23	mg/l	03/18/99	03/24/99	FTS
				0830	1254	
Lead	6010B	<0.003	mg/l	03/18/99	03/24/99	FTS
				0830	1254	
Magnesium	6010B	3.31	mg/l	03/18/99		FTS
				0830	1254	
Manganese	6010B	0.025	mg/l	03/18/99		FTS
				0830	1254	
Nickel	6010B	<0.010	mg/l	03/18/99		FTS
				0830	1254	

Page 2 (Continuation of 161197)

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.
Potassium	6010B	<0.200	mg/l	03/18/99	03/24/99	FTS
Selenium	6010B	<0.005	mg/l	03/18/99 0830		FTS
Silver	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1254	FTS
Sodium	6010B	4.70	mg/l	03/18/99 0830	03/24/99 1529	FTS
Zinc	6010B	0.016	mg/l	03/18/99 0830	03/24/99 1254	FTS
Mercury	7470A	<0.0002	mg/l	03/26/99 0830	03/29/99 0700	FTC
Dissolved Copper	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1249	FTS

Scientists and Consultants

106 VANTAGE POINT DRIVE **CAYCE, SOUTH CAROLINA 29033**

CERTIFICATE OF ANALYSIS

(803) 791-9700 FAX (803) 791-9111 www.shealyenvironmental.com

SC DHEC No. 32010

NC DEHNR No. 329

Client:

NEVADA GOLDFIELDS PO Box 1530 McCormick, SC 29

29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161195 Description: Well K

Coll. Date: 03/16/99

Coll. Time:

QA/QC Officer ______

Date Received: 03/17/99 Date Reported: 03/31/99

V.P. Analytical MP

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.
Well Depth		81.53	ft.		03/16/99	WRO.
Water Level Depth From Top of Casing		61.45	ft.		03/16/99	
pH-Field at 20.0 C	150.1	6.72	SU		03/16/99	-
Specific Conductance at 25 C - Field		81.4			03/16/99	-
Temperature-Field	170.1	20.0	C C		03/16/99	-
INORGANICS	170.1	20.0	C		03/10/33	PIF Q
Alkalinity Bicarbonate	SM4500D	36.0	mg/l		03/24/99	NWD
Alkalinicy bicarbonace	9247002	50.0	mg/ 1		1343	X112
Ammonia-N	350.3	0.586	mg/l		03/18/99	RMD
	33013	0.000	- 5, -		0930	
Chloride	300.0	4.97	mg/l		03/19/99	JPS
			5,		1130	
Cyanide-Total	335.2	<0.010	mg/l	03/29/99	03/30/99	JPS
-,			-3, -	1300	1300	
Nitrate + Nitrite	353.2	0.102	mg/l		03/18/99	NWD .
			٠.		1110	
Sulfate	300.0	4.76	mg/l		03/19/99	JPS
			_		1130	
TOC	415.1	1.1	mg/l		03/19/99	JPS
					2046	
TDS	160.1	24	mg/1		03/19/99	MCM
					1600	
METALS						
Aluminum	6010B	2.03	mg/l	03/18/99		FTS
				0830	1234	
Arsenic	6010B	<0.005	mg/l	03/18/99		FTS
	C01.00		/3	0830	1234	500A
Barium	6010B	0.011	mg/1	03/18/99		FTS
Go 3-1	C04.0D	.0.00	/3	0830	1234	7270
Cadmium	6010B	<0.002	mg/1	03/18/99 0830	1234	FTS
Calcium	6010B	6.32	/1	03/18/99		Φπ.c
Calcium	GOTOR	0.32	шу/ т	03/18/33	1234	F18
Chromium	6010B	<0.005	ma/1	03/18/99		PTQ
	00102	<0.003	ш9, 1	0830	1234	
Copper	6010B	0.011	mg/1	03/18/99		FTS
00000	***************************************	*****	-5 , -	0830	1234	
Iron	6010B	3.97	mg/l	03/18/99		FTS
			-	0830	1234	
Lead	6010B	<0.003	mg/l	03/18/99	03/24/99	FTS
				0830	1234	
Magnesium	6010B	5.32	mg/l	03/18/99	03/24/99	FTS
-				0830	1234	
Manganese	6010B	0.086	mg/l	03/18/99		FTS
				0830	1234	
Nickel	6010B	<0.010	mg/l	03/18/99		FTS
				0830	1234	

Page 2 (Continuation of 161195)

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.
Potassium	6010B	0.225	mg/l	03/18/99 0830	03/24/99 1234	FTS
Selenium	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1234	FTS
Silver	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1234	FTS
Sodium	6010B	5.52	mg/l	03/18/99 0830	03/24/99 1525	FTS
Zinc	6010B	0.051	mg/l	03/18/99 0830	03/24/99 1234	FTS
Mercury	7470A	<0.0002	mg/l	03/19/99 0830	03/22/99 1300	FTC
Dissolved Copper	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1229	FTS

Scientists and Consultants

106 VANTAGE POINT DRIVE **CAYCE, SOUTH CAROLINA 29033**

CERTIFICATE OF ANALYSIS

(803) 791-9700 FAX (803) 791-9111 www.shealyenvironmental.com

SC DHEC No. 32010

NC DEHNR No. 329

Client:

NEVADA GOLDFIELDS PO Box 1530 McCormick, SC 29

29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161196 Description: Well P

Coll. Date: 03/16/99 Coll. Time:

Date Received: 03/17/99

QA/QC Officer /~

V.P. Analytical

Date Reported: 03/31/99

				Date	Date	
Parameters	Method	Result	Units	Prepared		Anal.
Well Depth		89.18	ft.		03/16/99	MPQ
Water Level Depth From Top of Casing		75.42	ft.		03/16/99	MPQ
pH-Field at 18.0 C	150.1	6.61	នប		03/16/99	MPQ
Specific Conductance at 25 C - Field	120.1	104	unhos/cm		03/16/99	MPQ
Temperature-Field INORGANICS	170.1	18.0	C		03/16/99	MPQ
Alkalinity Bicarbonate	SM4500D	61.5	mg/l		03/24/99 1343	NWD
Ammonia-N	350.3	0.963	mg/l		03/18/99 0930	EMD
Chloride	300.0	4.75	mg/l		03/19/99	JPS
Cyanide-Total	335.2	<0.010	mg/l	03/29/99 1300		JPS
Nitrate + Nitrite	353.2	0.046	mg/l	1300	03/18/99 1110	NWD
Sulfate	300.0	5.52	mg/l		03/19/99	JPS
			/-		1130	
TOC	415.1	<1.0	mg/l		03/19/99 2105	JPS
TDS	160.1	80	mg/l		03/19/99	MCM
			•		1600	
1/2001 T (
METALS						
Aluminum	6010B	0.111	mg/l	03/18/99		FTS
				0830	1244	
Arsenic	6010B	<0.005	mg/l	03/18/99		FTS
				0830	1244	
Barium	6010B	<0.005	mg/l	03/18/99		FTS
			4-	0830	1244	
Cadmium	6010B	<0.002	mg/l	03/18/99		FTS
				0830	1244	
Calcium	6010B	5.59	mg/l	03/18/99		FTS
			4.5	0830	1244	
Chromium	6010B	<0.005	mg/1	03/18/99		FTS
_	4444		/3	0830	1244	TT.
Copper	6010B	0.010	mg/1	03/18/99		FTS
_			/7	0830	1244	200
Iron	6010B	0.199	mg/1	03/18/99		FTS
	2010		/3	0830	1244	nma
Lead	6010B	<0.003	mg/1	03/18/99 0830	1244	F15
**	C010D	~ 70	/1	- +		tam o
Magnesium	6010B	7.78	mg/1	03/18/99 0830	1244	FID
Vananaga	60100	0 014	mer /1	0830		ran C
Manganese	6010B	0.014	mg/1	0830	1244	FIG
Nickel	6010B	<0.010	/1	0830		Piro
NICKEL	OATAR	<0.010	mg/ I	03/18/33	1244	# ± G
				0030	1477	

Page 2 (Continuation of 161196)

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.
Potassium	6010B	0.200	mg/l	03/18/99 0830	03/24/99	FTS
Selenium	6010B	<0.005	mg/l	03/18/99 0830		FTS
Silver	6010B	<0.005	mg/l	03/18/99		FTS
Sodium	6010B	7.96	mg/l	03/18/99		FTS
Zinc	6010B	0.027	mg/l	03/18/99		FTS
Mercury	7470A	<0.0002	mg/l	03/19/99		DPS
Dissolved Copper	6010B	<0.005	mg/l	03/18/99 0830		FTS

Scientists and Consultants

106 VANTAGE POINT DRIVE CAYCE, SOUTH CAROLINA 29033

CERTIFICATE OF ANALYSIS

(803) 791-9700 FAX (803) 791-9111 www.shealvenvironmental.com

SC DHEC No. 32010

NC DEHNR No. 329

Client:

NEVADA GOLDFIELDS PO Box 1530 McCormick, SC 29

29835

Attention:

Scott Wilkinson

SHEALY Lab No: 161200

Coll. Date: 03/16/99

Coll. Time:

Description: Field Blank

QA/QC Officer A

V.P. Analytical

Date Received: 03/17/99 Date Reported: 03/31/99

Date Date Parameters Method Result Units Prepared Analyzed Anal. INORGANICS Alkalinity Bicarbonate <10.0 SM4500D mq/103/24/99 NWD 1343 Ammonia-N 0.955 03/23/99 MCM 350.3 mg/10900 Chloride 300.0 <1.00 mq/103/19/99 JPS 1130 Cyanide-Total <0.010 mg/l 03/29/99 03/30/99 JPS 335.2 1300 1300 03/17/99 NWD Nitrate + Nitrite 353.2 <0.020 mg/11555 Sulfate 300.0 <1.00 03/19/99 JPS mg/11130 TOC 03/19/99 JPS 415.1 <1.0 mg/12336 TDS 160.1 <10 03/19/99 MCM mg/l1600 **METALS** <0.050 mg/1 03/18/99 03/24/99 FTS Aluminum 6010B 0830 1350 mg/l 03/18/99 03/24/99 FTS Arsenic 6010B <0.005 0830 1350 Barium <0.005 mg/l 03/18/99 03/24/99 FTS 6010B 0830 1350 Cadmium 6010B <0.002 mg/1 03/18/99 03/24/99 FTS 0830 1350 Calcium 6010B <0.050 mg/l 03/18/99 03/24/99 FTS 0830 1350 Chromium 6010B <0.005 mg/l 03/18/99 03/24/99 FTS 0830 1350 Copper 6010B <0.005 mg/l 03/18/99 03/24/99 FTS 0830 1350 Iron 6010B <0.050 mg/l 03/18/99 03/24/99 FTS 0830 1350 mg/l 03/18/99 03/24/99 FTS Lead 6010B <0.003 0830 1350 Magnesium <0.030 6010B mq/1 03/18/9903/24/99 FTS DERG 1350 Manganese 6010B <0.015 mg/l 03/18/99 03/24/99 FTS 0830 1350 Nickel 6010B <0.010 mg/l 03/18/99 03/24/99 FTS 0830 1350 Potaggium 6010B <0.200 mg/l 03/18/99 03/24/99 FTS 0830 1350 Selenium <0.005 mg/l 03/18/99 03/24/99 FTS 6010B 0830 1350 Silver 6010B <0.005 mg/1 03/18/99 03/24/99 FTS 0830 1350

Page 2 (Continuation of 161200)

Parameters	Method	Result	Units	Date Prepared	Date Analyzed	Anal.	·
Sodium	6010B	<0.100	mg/l	03/18/99 0830	03/24/99	FTS	
Zinc	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1350	FTS	
Mercury	7470A	<0.0002	mg/l	03/26/99 0830	03/29/99 0700	FTC	
Dissolved Copper	6010B	<0.005	mg/l	03/18/99 0830	03/24/99 1345	fts	

DEPTH TO GROUNDWATER SUMMARY

NEVADA GOLDFIELDS McCormick, SC

WELL NUMBER	DGW (feet)
GW-1	24.18
GW-2	21.61
GW-3	6.90
Well K	61.45
Well H	53.00
Well P	75.42
Well I	52.00
Well J	59.55

CHAIN OF CUSTODY #

SHEALY ENVIRONMENTAL SERVICES, INC.

106 Vantage interpreted in the Drive cayce, South lina 29033

Telephone No. (803) 791-9700 Fax No. (803) 791-9111

	19e
NPDES #	
County	
Deceiving Streem	

CHAIN OF CUSTODY RECORD

County
Receiving Stream

Reporting Address Mc(a	eporting Address McCorpulk, SC SAMPLE ANALYSIS REQUIRED Outfall No.																					
		·			\Box	T	T	П	T			Τ	T								П	←PRESERVATION (CODE) LAB USE ONLY
Attention 5 co ++ h	lilkers	ر م	_		\prod			_	₹		ect,										3	CODE: A = None Program Area (Circle) B = HNO3 DW CWA/NPDES
Telephone No.		P.O. No			g	pH, Conductivity		Speci	Spec		Bs - S		7	٠		ecrfy		Cotform - Specify type	Toxicity - Specify	~	Deschud 64	C = H2SO4 D = NaOH E = ICE DW CWANPDES BCRA SP/SOL SP/LIO Other:
	V- 1996	1	مار	<u>a</u> 6		g d	g. E.≥	ALS-	ě	Speci	Method required Pesticides/PCBs - S	Scides	Phen	Green		ds – St	age age	S - E	crty -	9	3	E = ICE F =
Sample ID (Location)	Yr. 1999 DATE	1	징	8 8	Ö *	¥ 8	1 200	METALS - Specify	<u>8</u>)	<u>8</u> 8	P Aeth	喜	Total	ਫ਼ੈ	× ×	Š	Ş	38	Š	3	4	REMARKS SESI LAB I.D.
GW-1	Start/6 Mar				11				ł						İ					_		General-TDS, Cl, Nitrate/withte
	Finish		X	11	5	1	X	X	X	1		l					X			X	X	General-TDS, CI, Nitrate/Nitrole AIK sulfate Nuts-NH3, FOC 14192
	Start	 	\top	††	\Box	+	\dagger	\Box	\dashv	+	+	\dagger	 		T		-			_		Well as U. So Ph Al Re.
GW-2	Finish		X		5		X	X	X								X			X	X	Metals - As, Hg, Se, Pb, Al, Ba, Cd, Ca, Cr, Cu, Fe, Mg, Mn 161193
	Start					T	1															Ni, K, Ag, Na, Zn
GW-3	Finish		X		5		γ	Х	X								X			X	X	161194
	Start																					
Well K	Finish		X		5		Х	X	X								X			X	X	161195
110	Start					i														. ,		
Well P	Finish		X		5		X	X	X				<u>.</u>				X			X	X	141196
11 -	Start								.								V					
Well J	Finish		X		5		Įχ	X	X								X			X	X	161197
	Start		\top	\prod				П												V	П	
Well 14	Finish		X		5		γ	X	χ								X			X	X	16(198
	Sland 1999															l				.,		
We/1 1	Finish		Х		5			X								L.	<u> </u>			Ľ	χ	141199
MYETON QUARTE	SAUM	D:	ate/T	ìme		Re	ceive	d by	(Sig	.)			-					D	ate	/Tin	'ne	Hazards Associated with Sample Custody Seal Intact (Circle) YES NO NONE
Print Name: QHLL Signature:				.C.	س.	-										1						Receipt TRCmg/l
Signature: Relinquished by (Sig.)		1711-10	ate/T	69 ime	12	_	ceive	d by	(Sic	1						\dashv		D	ate	 /Tin	ne	Receipt pHsu
Trainiquistred by (Sig.)			a(0 /																1			Receipt Temp. 3.4 -c
Relinquished by (Sig.)		D	ate/1	ime		(fat	Reb	P	y (Sig	7//	2/	V				3	11	7/8	ate.	/Tin	ne () ()	Received on Ice (Circle) (YES NO ICE PACK
White Coov: Serr	noler				_		<u> </u>	6	1.1	<u> </u>	10.		Yellov	w Co	DV:		ilv	<u> </u>	1	'	<u> </u>	Pink Copy: Report

CHAIN OF CUSIODY #

SHEALY ENVIRONMENTAL SERVICES, INC.

108 Vantage inte Drive
Cayce, South lina 29033
Telephone No. (803) 791-9700 Fax No. (803) 791-9111

NPDES #	
County	

CHAIN	OF	CUSTOD	Y	RECORI
	\mathbf{v}	COLUD		IMOOIM

Receiving Stream

Reporting Address M.C.	rmick	, sc			_			S	MP	LE	AN	IAL	YSI	S F	REC		REC)				Outfall No
				_	-[I				\top		I					\perp	\perp	←PRESERVATION (CODE) LAB USE ONLY CODE: A = None
Attention <u>Scott</u> W Telephone No.	lilkerso	P.O. No			rtainers	nductivity		- Coordin	X - Specify		equired	s/PCBs - Specify	seg	0000	See l	- Specify	Cyanide	- Specify	- Specify	fa/	hed (in	CODE: A = None B = HNO3 C = H2SO4 D = NaOH E = ICE Program Area (Circle) DW CWAAPDES RCBA SP/LIO Other:
Sample ID (Location)	Yr. 1999 DATE	TIME	WELL	COMP	S of co	F. S.	000	Specify		BTEX	VOC - Sr Wethod n	Pesticide	Herbica		B BNA	Solids	Cyanida	Coliform	Toxicity	Sen,	01554	REMARKS SESI LAB I.D.
Field Blank	Start / L Mox Firmsh						1 1	X	1.	.1					;		X		,	k J		General-TDS, C, Nitrate/Nitrike
	Start																					Nuts-NH3, TOC Metals-As. Ha Se Pb.
	Start																					Nuts-NA3, TOC Netals-As, Ha, Se, Pb, Al, Ba, Cd, Ca, Cr, Cu, Fe, Ma, Mn, Ni, K Ag, Na, Zn
	Start																					Ag, Na, Zn
	Start																					
	Start																					
	Start Finish																					
	Start Finish																					
SAMPLES OF SIGNATURE OF SIGNATURE	CEBAN	Da	1	ime (C	((5		Rece	ived I	by (S	ig.)			•					Di	ate/	Time	•	Hazards Associated with Sample Custody Seal Intact (Circle) YES NO NONE Receipt TRCmg/l Receipt pH su
Relinquished by (Sig.)				ime		1		ived		-			·							Time		Receipt Temp. 3. 4 °C
Relinquished by (Sig.)		Da	ate/1	rime			ab F	Con)) (Sig.} C(QL.	V	V=B			She		7 P	19/	()	114	Received on ice (Circle) YES) NO ICE PACK Pink Copy: Report
Marian Prants Da											. ,		T CHIE	JWL	AUUV.	் பாம்	all V					PIDECODY: HEDOX

Page	of	
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Shealy Environmental Services, Inc. 106 Vantage Point Drive Cayce, S.C. 29033

Date (MM-DD-YY)	March 16, 1999		Casing Diameter: 4 inches	Casing Material: PVC - Metal
Field Personnel	MPQ		Guard Pipe: PVC - Meta) - No	Locking Cap: (Y)- N
Facility Name	NEVADA GOLDFIELDS, INC	C.	Protective Abutment: Y - N	Integrity Satisfactory: Y - N
Well ID# GW /	· · · · · · · · · · · · · · · · · · ·		Well Yield: Low - Mod High	
Weather Conditions Clear Co	Air Temperature	°C.	Remarks:	
Total Well Depth (TWD) =	18 36.95			
Depth To Groundwater (DGW) = 2	1.18			
Length Of Water Column (LWC) =	2,77			
	52 = 8,33	gal.		
3 Casing Volumes = 24.9		Evacuation Volume		
Total Volume of Water Removed =		gal.		
Method of Well Evacuation	TB SSB WW GP Other			
Method of Sample Collection	TB SSB WW GP Other			
Evacuation and Collection Methods TB - Teflon Bailer	Constants for Casing Diameters 1.5" = 0.092 5" = 1.02			
SSB - Stainless Steel Bailer	2" = 0.163 6" = 1.47			
WW - Well Wizard GP - Grunfos Pump	3" = 0.367			
	F	IELD ANALYSES		
		DED THAT I GEO	II V	/ELL SAMPLE TIME:
VOLUME PURGED (GALLONS)	/st 8,33			
TIME (24 HOUR SYSTEM)	9:37 9.47			emarks:

TIME (24 HOUR SYSTEM)	9;
pH (SU)	3.
WATER TEMPERATURE (°C.)	1
SP. CONDUCTIVITY (UMHOS/CM)	41
TURBIDITY (SUBJECTIVE)*	1
ODOR (SUBJECTIVE)**	1
• 1 = CLEAR 2 = SLIGHT 3 = MODERATE 4	= HIGH

	4	TELD ANAL I SE			
/s+	8,33				WELL SAMPLE TIME:
9:37	9.47				Remarks:
3,64	3.97				Dry at 8.33 gal.
140	160				,
410	420				
1					
1	(
4 = HIGH	** 1 =	NONE 2 = FAINT	3 = MODERATE	4 = STRONG	

Page	of	
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Shealy Environmental Services, Inc. 106 Vantage Point Drive Cayce, S.C. 29033

Date (MM-DD-YY)	March 1	l 6, 1999		Casing D	iameter: 👍 in	ches Casing N	Material PVC - Metal
Field Personnel	MPQ				e: PVC Meta	No Locking	Cap: Y N
Facility Name N	EVADA GOL	DFIELDS, IN	C.	Protective	Abutment: Y	-N Integrity	Satisfactory: Y - N
Well ID# (W- 2		······································		Well Yiel	d: Low - Mod	High	
Weather Conditions		Air Temperatur	e G	C. Remarks:			<u></u>
Total Well Depth (TWD) = 27, 2	Ó						
Depth To Groundwater (DGW) = 21,4	, /						
Length Of Water Column (LWC) =	59	· · · · · · · · · · · · · · · · · · ·					
1 Casing Volume (OCV) = LWC x , 65 2-	= 4,3	0	g	al.			
3 Casing Volumes =			l Evacuation Volu	me			-
Total Volume of Water Removed =			g	al.	-		
Method of Well Evacuation TB	SSB WW C	GP Other			•		
Method of Sample Collection TB	SSB WW C	P Other					
	= 0.163 6" = = 0.367 7" =	= 1.02 = 1.47 = 2.00 = 2.61	TIELD ANALYSE	S			
		15t	4, 30			WELL SAM	PLE TIME:
VOLUME PURGED (GALLONS)	15/					Remarks:	····
TIME (24 HOUR SYSTEM)		9'.20	9:24				· · · · · · · · · · · · · · · · · · ·
pH (SU)	900	2.53	2.46	_		Drya	+ 4.3 gal.
WATER TEMPERATURE (°C.)	·	140	140			/	
SP. CONDUCTIVITY (UMHOS/CM)		900	700			_	
TURBIDITY (SUBJECTIVE)*		1	λ				
ODOR (SUBJECTIVE)** * 1 = CLEAR 2 = SLIGHT 3 = MODERATE	4=HIGH	•• 1=	NONE 2 = FAINT	3 = MODERAT	F 4 = STRONG		

Shealy Environmental Services, Inc. 106 Vantage Point Drive Cayce, S.C. 29033

Page	of	
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Date (MM-DD-YY)	March 16, 1999		Casing Diameter: U inches	Casing Material: (PVC)- Metal
Field Personnel	MPQ		Guard Pipe: PVC - Metal- No	Locking Cap: Y- N
Facility Name	NEVADA GOLDFIELDS, INC.		Protective Abutment: Y - N	Integrity Satisfactory: Y - N
Well ID# GW-3			Well Yield: Low - Mod High	
Weather Conditions	Air Temperature	°C.	Remarks:	
Total Well Depth (TWD) =	22,60			
Depth To Groundwater (DGW) =	6.90			
Length Of Water Column (LWC) =	15.7			
1 Casing Volume (OCV) = LWC x	652 = 10.24	gal.		
3 Casing Volumes = 30.		cuation Volume		
Total Volume of Water Removed =		gal.		
Method of Well Evacuation	TB SSB WW GP Other			· · · · · · · · · · · · · · · · · · ·
Method of Sample Collection	TB SSB WW GP Other			
Evacuation and Collection Methods	Constants for Casing Diameters			
TB - Teflon Bailer	1.5" = 0.092 $5" = 1.02$			
SSB - Stainless Steel Bailer	$2^n = 0.163$ $6^n = 1.47$			
WW - Well Wizard	$3^{n} = 0.367$ $7^{n} = 2.00$			
GP - Grunfos Pump	4" = 0.652 8" = 2.61			

FIELD ANALYSES						
VOLUME PURGED (GALLONS)	15+	10.24				WELL SAMPLE TIME:
TIME (24 HOUR SYSTEM)	10.37	10:45				Remarks:
pH (SU)	6-14	(a4)				Drv at 10.24 gal.
WATER TEMPERATURE (°C.)	/3°	/3°				
SP. CONDUCTIVITY (UMHOS/CM)	230	260				
TURBIDITY (SUBJECTIVE)*						
ODOR (SUBJECTIVE)**		1				
	= HIGH	** 1=	NONE 2 = FAINT	3 = MODERATE	4 = STRONG	

Page	of				

16/198 Shealy Environmental Services, Inc. 106 Vantage Point Drive Cayce, S.C. 29033

Date (MM-DD-YY)	March 1	6, 1999		Casing Dian	neter:) inches	Casing Material: (PVC)- Metal
Field Personnel	MI	<u> </u>			PVC - Meta) - No	Locking Cap: Y - N
Facility Name N	EVADA GOL	DFIELDS, IN	<u>C.</u>	Protective A	abutment: Y - (N)	Integrity Satisfactory: Y - N
Well ID# Well H				Well Yield:	Low - Mod High	
Weather Conditions Clear, Mild		Air Temperatur	e C	C. Remarks:		
Total Well Depth (TWD) = 6/98					· · · · · · · · · · · · · · · · · · ·	
Depth To Groundwater (DGW) = 53.0	j Ø	-				
Length Of Water Column (LWC) = 8.9	8					
1 Casing Volume (OCV) = LWC x	= 1,44			al.		
3 Casing Volumes = 4.38		gal. = Standard	l Evacuation Volu	me		
Total Volume of Water Removed = 9.38			g	al.		
Method of Well Evacuation (TB)	SSB WW C	P Other				
Method of Sample Collection	SSB WW C	P Other	,			
TB - Teflon Bailer 1.5°	= 0.163 6" = = 0.367 7" =	1.02 1.47 2.00 2.61		"		
		F	TELD ANALYSE	S	•	
VOLUME PURGED (GALLONS)	15+	1.46	292	4,38	L	ELL SAMPLE TIME: 14:20
TIME (24 HOUR SYSTEM)	14:08	14:16	14:14	14:17	R	emarks:
pH (SU)	5.55	5.59	5.46	5.37		Dry at 4.38 gal.
WATER TEMPERATURE (°C.)	190	190	190	190		
SP. CONDUCTIVITY (UMHOS/CM)	110	110	110	100		
TURBIDITY (SUBJECTIVE)*		j	1	1		
ODOR (SUBJECTIVE)** 1 = CLEAR 2 = SLIGHT 3 = MODERATE 4	⇒ HIGH	** 1=	NONE 2 = FAINT) 3 = MODERATE	4 = STRONG	

Page	 of	

Shealy Environmental Services, Inc. 106 Vantage Point Drive Cayce, S.C. 29033

Date (MM-DD-YY)	March 16, 1999		Casing Diameter:inches	Casing Material: (PVC - Metal
Field Personnel	MPQ		Guard Pipe: PVC - Metal - No	Locking Cap: Y - N
Facility Name	NEVADA GOLDFIELD	S, INC.	Protective Abutment: Ø - N	Integrity Satisfactory: Y - N
Well ID# Well I			Well Yield: Low - Mod High	
Weather Conditions	Mild Air Temp	oerature ^o C.	Remarks:	
Total Well Depth (TWD) =	8,36			
Depth To Groundwater (DGW) =	52.00			
Length Of Water Column (LWC) =	36.3			
1 Casing Volume (OCV) = LWC x	163 = 5.92	gal.		
3 Casing Volumes = 17.7		tandard Evacuation Volume		
Total Volume of Water Removed =	17.76	gal.		
Method of Well Evacuation	(B) SSB WW GP Other			
Method of Sample Collection	SSB WW GP Other			
Evacuation and Collection Methods	Constants for Casing Diameters			
TB - Teflon Bailer	1.5" = 0.092			
SSB - Stainless Steel Bailer	2" = 0.163 6" = 1.47 3" = 0.367 7" = 2.00			
WW - Well Wizard GP - Grunfos Pump	4" = 0.652			
		FIELD ANALYSES	•	
		1	11 W	ELL SAMPLE TIME.

VOLUME PURGED (GALLONS)

TIME (24 HOUR SYSTEM)

pH (SU)

WATER TEMPERATURE (°C.)

SP. CONDUCTIVITY (UMHOS/CM)

TURBIDITY (SUBJECTIVE)*

ODOR (SUBJECTIVE)**

•	1 = CLEAR	2 = SLIGHT	3 = MODERATE	-
---	-----------	------------	--------------	---

		IELD ANAL I SE			
1st	5,92	11,84	17.76		WELL SAMPLE TIME: 15:00
14:39	14:41	14:44	14:48		Remarks:
5.26	5,20	5.22	5.20		
210	20°	190	20°		
80	90	90	90		
	1	1	1		
	1	1	1		
4 = HIGH	** 1=	NONE 2 = FAINT	3 = MODERATE	4 = STRONG	

Field Data Information Sheet For Groundwater Sampling	
Page of	

Shealy Environmental Services, Inc. 106 Vantage Point Drive Cayce, S.C. 29033

Date (MM-DD-YY)	March 16, 1999		Casing Diameter: 2 inches	Casing Material: (PV) - Metal
Field Personnel	MPQ		Guard Pipe: PVC Metal - No	Locking Cap: Y- N
Facility Name N	EVADA GOLDFIELDS, IN	iC.	Protective Abutment: (Y) - N	Integrity Satisfactory: Y - N
Well ID# Well J			Well Yield: Low - Mod High	
Weather Conditions Clear, Cool	/ Air Temperatu	re ^o C.	Remarks:	
Total Well Depth (TWD) = 63.9				
Depth To Groundwater (DGW) = 59.	55			
Length Of Water Column (LWC) = 4.	35			
1 Casing Volume (OCV) = LWC x 163		gal.		
3 Casing Volumes =	gal. = Standar	rd Evacuation Volume		
Total Volume of Water Removed =		gal.	<u> </u>	
Method of Well Evacuation				
Method of Sample Collection	SSB WW GP Other			
TB - Teflon Bailer 1.5 SSB - Stainless Steel Bailer 2" WW - Well Wizard 3"	restants for Casing Diameters = 0.092			
		FIELD ANALYSES	·	
VOLUME PURGED (GALLONS)	1st ,71	1.42		VELL SAMPLE TIME: /火の)
TIME (24 HOUR SYSTEM)	1:40 1.45	1.48	E	kemarks:
pH (SU)	<i>5.95 5.95</i>	5.64		Dry at 2.0 gal
WATER TEMPERATURE (°C.)	210 210	20		
SP. CONDUCTIVITY (UMHOS/CM)	50 50	60		
TURBIDITY (SUBJECTIVE)*	/	1_1_		
ODOR (SUBJECTIVE)** * 1 = CLEAR 2 = SLIGHT 3 = MODERATE 4		= NONE 2 = FAINT 3	= MODERATE 4 = STRONG	

Fi	eld	Data	Information	Sheet	For	Groundwater	Sampling

1
161175
Shealy Environmental Services, Inc
106 Vantage Point Drive
Cayce, S.C. 29033

Page	of	

Date (MM-DD-YY)	March 16, 1999		Casing Diameter: 3 inches	Casing Material: (PVO - Metal
Field Personnel	MPQ		Guard Pipe: PVC - Metal - No	Locking Cap: N - N
Facility Name	NEVADA GOLDFIELDS, INC.		Protective Abutment: Ø - N	Integrity Satisfactory: Y - N
Well ID# \			Well Yield: Low - Mod High	
Weather Conditions Clear	Air Temperature	°C.	Remarks:	<u> </u>
Total Well Depth (TWD) =	81,53			
Depth To Groundwater (DGW) =	61.45			
Length Of Water Column (LWC)				
1 Casing Volume (OCV) = LWC		gal.		
3 Casing Volumes =	gal. = Standard Evacuation	on Volume		
Total Volume of Water Removed	= 6.54	gal.		
Method of Well Evacuation	TB SSB WW GP Other			
Method of Sample Collection	TB SSB WW GP Other			
Evacuation and Collection Methods TB - Teflon Bailer SSB - Stainless Steel Bailer WW - Well Wizard GP - Grunfos Pump	Constants for Casing Diameters 1.5" = 0.092			

FIELD ANALYSES

VOLUME PURGED (GALLONS)	15+	3.27	6.54			WELL SAMPLE TIME:
TIME (24 HOUR SYSTEM)	12:57	1:05	1,15			Remarks:
pH (SU)	6.61	6.67	6.72			Dry at 6.54
WATER TEMPERATURE (°C.)	20°	20°	20°			7
SP. CONDUCTIVITY (UMHOS/CM)	90	90	90			
TURBIDITY (SUBJECTIVE)*	/	2	2			-
TORBIDIT I (SOBJECTIVE)	' ,	,	, .	 		
ODOR (SUBJECTIVE)**	/					
• 1 = CLEAR 2 = SLIGHT 3 = MODERATE 4	= HIGH	** 1=	NONE 2 = FAINT	3 = MODERATE	4 = STRONG	

UP1101 Shealy Environmental Services, Inc. 106 Vantage Point Drive Cayce, S.C. 29033

Page ____ of ____

Date (MM-DD-YY)	March 16, 1	1999	Casing Diameter: 2 inches	Casing Material: (VO- Metal
Field Personnel	MPQ	- · · · · · · · · · · · · · · · · · · ·	Guard Pipe: PVC - Meta) - No	Locking Cap: (1) - N
Facility Name	NEVADA GOLDFI	IELDS, INC.	Protective Abutment: Y - N	Integrity Satisfactory: Y - N
Well ID# Well P			Well Yield: Low - Mod High	
Weather Conditions Clear	Coo/ A	ir Temperature ^o C.	Remarks:	
	9.18			
Depth To Groundwater (DGW) =	75.42			
Length Of Water Column (LWC) =	13.76			
1 Casing Volume (OCV) = LWC x	. 163 = 2.24	gal.		
3 Casing Volumes =		gal. = Standard Evacuation Volume		
Total Volume of Water Removed =	6.72	gal.		
Method of Well Evacuation	TB SSB WW GP	Other		
Method of Sample Collection	TB SSB WW GP	Other		
Evacuation and Collection Methods	Constants for Casing Diameters			
TB - Teflon Bailer	1.5" = 0.092 $5" = 1.02$	=		
SSB - Stainless Steel Bailer	2" = 0.163 6" = 1.47			
WW - Well Wizard	3" = 0.367 7" = 2.00			
GP - Grunfos Pump	4" = 0.652 8" = 2.61			

VOLUME PURGED (GALLONS)

TIME (24 HOUR SYSTEM)

pH (SU)

WATER TEMPERATURE (°C.)

SP. CONDUCTIVITY (UMHOS/CM)

TURBIDITY (SUBJECTIVE)*

ODOR (SUBJECTIVE)**

1 - CIPAR	A - OF LOTE	2 - MODER ATT	4 - 177/011
I = CLEAK	% = 2FIQU1	3 = MODERATE	4 = MUM

PIELD ANALVERS

	r	IELD ANALYSI	22		
15+	2.24	4, 48	6.72		WELL SAMPLE TIME: 12:10
11:47	11:52	11:58	12:03		Remarks:
6-29	6.45	6,52	6.61		
190	19°	186	180		
120	120	120	120		
			1		
1		1			
4 = HIGH	** [=	NONE $2 = FAINT$	3 = MODERATE	4 = STRONG	

ANALYTICAL METHODOLOGY

NEVADA GOLDFIELDS McCormick, SC

	EPA
<u>PARAMETER</u>	<u>METHOD</u>
TDS	160.1
Nitrate + Nitrite-N	353.2
Alkalinity-Bicarbonate	SM4500D
Ammonia-N	350.3
Chloride	300.0
Sulfate	375.4
TOC	415.1
Cyanide	335.2
Metals: Mercury	7470A
Total Metals (All others)	6010B